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Bibliography on Urban Climates, p. 734

1. 3 July, 1952 No. 7

METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

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C. Selective, annotated bibliographies on subjects of immediate and special interest to meteorologists.

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METEOROLOGICAL ABSTRACTS AND BIBLIOGRAPHY

MALCOLM RIGBY, Editor

Vol. 3 JULY 1952 No. 7

SPECIAL FEATURE IN THIS ISSUE

A Selective Annotated Bibliography on Urban Climates

(*For complete table of contents see back cover*)

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FOREWORD

Meteorological Abstracts and Bibliography is a monthly publication whose purpose is to bring to the attention of meteorologists current literature in their field and in related fields and to provide bibliographic information on various subjects, as interest demands.

Part I contains from 175 to 300 abstracts of current periodical literature and monographs in the fields of meteorology, hydrology, oceanography, etc. These abstracts are arranged according to the Universal Decimal Classification.

Part II of each issue comprises a special annotated bibliography of from 50 to 250 important references on a special subject without respect to recency of material. No attempt is made to prepare exhaustive bibliographies; instead, the aim is to include a representative cross section of the various aspects of a subject. Preference is given to recent material, comprehensive works, material from obscure sources, and items with good bibliographies.

Bibliographies previously published were:

No.	Mo.	Vol. I, 1950	Vol. II, 1951
1.	Jan.	**Atmospheric Pollution**	**Extended Forecasting**
2.	Feb.	**Aerobiology**	**Long Range Forecasting**
3.	March	**Cloud Physics and "Rain Making"**	**Soil Temperature**
4.	April	**Hail**	**Constants, Units, Tables and Diagrams**
5.	May	**Tornadoes**	**Climate of the Near East**
6.	June	**Volcanic Dust**	**Climate of the Middle East**
7.	July	**Climatic Changes**	**Special Winds**
8.	Aug.	**Thunderstorms**	**Radar Storm Detection**
9.	Sept.	**Icing**	**Condensation Trails**
10.	Oct.	**Acoustical Propagation**	**Climate of Northeast Africa**
11.	Nov.	**Evaporation**	**Mountain Meteorology**

Bibliographies published this year were:

1. **Climatology of Northwest Africa,** Vol. III, No. 1, Jan. 1952
2. **Carbon Dioxide,** Vol. III, No. 2, Feb. 1952
3. **Climate of Paraguay, Uruguay and Argentina,** Vol. III, No. 3, March 1952
4. **Dew,** Vol. III, No. 4, April 1952
5. **Objective Forecasting,** Vol. III, No. 5, May 1952
6. **Stratus Forecasting,** Vol. III, No. 6, June 1952
7. **Urban Climatology,** Vol. III, No. 7, July 1952

Forthcoming bibliographies will be:

8. **Climate of Central Africa,** Vol. III, No. 8, Aug. 1952
9. **Visibility,** Vol. III, No. 9, Sept. 1952
10. **Glazed Ice,** Vol. III, No. 10, Oct. 1952
11. **Free Air Turbulence,** Vol. III, No. 11, Nov. 1952

Other bibliographies in preparation are:

Actinometers
Arctic Meteorology
Auroral Physics
Climate and Cancer
Climate of Australasia
Climate of Southeast Asia and the East Indies
Frost and Frost Forecasting
High Level Winds
Machine Methods in Meteorology
Microwave Propagation
Oceanographic Meteorology
Ozone
Tropical Cyclones
Tropopause Variations
Turbulence

Part III contains a listing of the contents of those journals which are primarily meteorological. These are published in the earliest issue where space permits.

Part IV is made up of author, subject and geographical indexes. In the June and December issues cumulative indexes are published.

EXPLANATIONS

Location of material: For each entry, a symbol is given for at least one library where the material may be found. The Union List of Serials (Gregory) is the source of most of the symbols used. In some cases, where no symbol has been assigned to a library, one will be devised according to the principles of the Union List.

Library symbols used frequently may be found in the following list:

DA:	U. S. Dept. of Agriculture Library, Washington, D. C.
DBS:	U. S. Bureau of Standards Library, Washington, D. C.
DGS:	U. S. Geological Survey Library, Washington, D. C.
DLC:	Library of Congress, Washington, D. C.
DSG:	U. S. Army Medical Library, Washington, D. C.
DSI:	Smithsonian Institution Library, Washington, D. C.
DWB:	U. S. Weather Bureau Library, Washington, D. C.
GB-MO:	Great Britain, Meteorological Office Library, Harrow, England.
MH-BH:	Harvard University, Blue Hill Observatory (and American Meteorological Society) Library, Milton, Mass.
NN:	New York Public Library, New York, N. Y.
NNA:	American Geographical Society Library, New York, N. Y.

Other symbols:

*	before an entry indicates a good data source.
†	before an entry indicates a good bibliography.
§	before an entry indicates a synoptic case history study accompanied by charts.

Geographic locations are in the English form rather than the form used locally, for example, Moscow for Moskva.

Titles of articles or monographs are in the language of the original article unless otherwise stated. Slavic (Cyrillic) titles are transliterated into the Roman alphabet according to the Library of Congress transliteration scheme.

Abbreviations:

Titles of periodicals are not abbreviated, as a rule.

The months of the year from March to July are not abbreviated. Other months are abbreviated as Jan., Feb., Aug., Sept., Oct., Nov., and Dec.

The word or abbreviation for Volume (Tom, Band, Jahrgang, Año, etc.), for Number (Heft, Fascicule, Vypusk, etc.) and for page or pages is omitted from most entries. Thus an entry will read as follows:

Meteorologische Rundschau, 2(5–6):146–151, May–June 1950.

This indicates that the article appeared in *Meteorologische Rundschau*, *Jahrgang* 2 (Vol. 2), *Heft* 5–6 (No. 5 and 6), *pages* 146–151, May–June 1950.

PART I. ABSTRACTS OF CURRENT METEOROLOGICAL MATERIAL

COMPENDIUM ARTICLES AND WORKS OF SPECIAL INTEREST

3.7–1 551.511:551.543

†Austin, James M., **Mechanism of pressure change.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 630–638. 3 figs., table, 30 refs. 7 equations.) **DWB**—Theories of pressure *changes* (not pressure *systems*) are classed as thermal or dynamic. The latter are approached through various forms of the pressure tendency equation; this cannot be computed accurately because the net value is a small difference between large (vertical and horizontal) terms, but supplemented by the vorticity equation it can test theories of pressure change. Author then develops the thermal theory and finds that local nonadiabatic changes and advection, through a sufficient depth, can give adequate sea level pressure changes. High level processes are regarded as secondary, not primary, causes of surface changes. The physical picture is still incomplete and no definite conclusions can be drawn. *Subject Heading:* **1. Pressure changes.**—*C.E.P.B.*

3.7–2 551.510.42

Carter, J. H. and others, **On atmospheric pollution: a group of contributions.** *Meteorological Monographs*, Boston, 1(4), Nov. **1951.** 55 p. diagrs., graphs, tables, refs., equations. Price $4.50. **DWB**—A group of 13 papers presented at the Symposium on Atmospheric Pollution held during the 30th Anniversary Meeting of the American Meteorological Society at St. Louis, Jan. 3–6, 1950. The monograph begins with a panel discussion on "Some aspects of the air pollution problem," wherein J. H. CARTER (St. Louis) discusses "Enforcement principles and standards" (p. 1–3) in various American cities; C. A. GOSLINE (du Pont de Nemours & Co.) mentions in "Meteorology applied to air pollution abatement" (p. 4–5) that meteorological control is not usually economical, is applicable only to single plants in isolated areas, cannot be applied to continuous operations and is subject to forecast errors. Meteorologists should work to develop techniques for determining dispersion effects, using meteorological control and forecasting as last resorts; E. WENDELL HEWSON (M.I.T., Cambridge, Mass.) gives a brief summary of methods used at Trail, B. C. for control of smelter fumes in "Meteorological influences and their application to control at the source" (p. 5–6); HELMUT E. LANDSBERG (Dir. Geophysical Research Division, Air Force Cambridge Research Center, Boston, Mass.) takes up "Climatology and its part in pollution" (p. 7–8), giving an historical and technical survey of influences of weather, climate and microclimate on pollution of various types (natural and artificial) and effect of pollution on weather and climate (rainfall, fog, UV radiation, visibility, etc.) and possible effects of volcanic dust or CO_2 on climatic changes. Following this panel discussion are nine technical papers constituting a group of original contributions to our knowledge of the measurement and diffusion of stack gases in the atmosphere. The paper by MORTON L. BARAD; (New York Univ., now at General Electric Co., Nucleonics Div., Richland, Washington) "Diffusion of stack gases in very stable atmospheres" (p. 9–14) is based on aerial photography of oil-fog plumes taken at Brookhaven National Laboratory, and shows that dispersion is nonisotropic, in that the vertical dispersion is not as extensive as the horizontal, and that there is a rapid initial dilution of effluents in the first few meters after leaving the stack, followed by a slower dispersion (with a constant exchange coefficient only during stable atmospheric conditions). The source must be treated as area source of finite concentration, instead of classical treatment as a point source of infinite concentration, if concentrations within 1 or 2 km are to be determined; GLENN W. BRIER (U. S. Weather Bureau, Washington, D. C.) presents the "Statistical theory of diffusion by turbulent eddies" (p. 15–19); W. C. L. HEMEON (Industrial Hygiene Foundation, Pittsburgh, Penna.) "Instruments of air pollution measurement" (p. 20–23), including measurement of

particle size, light obscuring effect, soiling effect, and acid corrosion effect on materials. PHILIP H. LOWRY (Brookhaven National Laboratory, now at Operations Research Office, Johns Hopkins Univ., Chevy Chase, Md.) in "Microclimate factors in smoke pollution from tall stacks" (p. 24–29) analyzes number of smoke hours by wind direction, speed and gustiness, from Brookhaven data; P. H. LOWRY, D. A. MAZARELLA and M. E. SMITH (Brookhaven) give extensive ground level concentration data for Brookhaven area (1949–51) in "Ground level measurements of oil-fog emitted from a hundred-meter chimney" (p. 30–35); H. F. POPPENDIEK (Univ. of California, Los Angeles) gives data on "Gustiness profiles in the lower layers of the atmosphere (p. 36–38); HUNTER ROUSE (Iowa State Univ.) shows results of studies of diffusion over model cities and buildings in "Air-tunnel studies of diffusion in urban areas" (p. 39–41); R. H. SHERLOCK (Univ. of Michigan) shows how wind frequency and duration data for any given place may be treated in "Analyzing winds for frequency and duration" (p. 42–49); and finally, MAYNARD E. SMITH (Brookhaven) "The forecasting of micrometeorological variables" (p. 50–55) shows how forecasts of micrometeorological wind and turbulence conditions were made at Brookhaven on the basis of meteorological factors and in terms of operational factors (such as radiation dosage). *Subject Headings:* **1. Atmospheric pollution 2. Symposia.**—*M.R.*

3.7–3 551.553.1 551.555.3/4

†Defant, Friedrich, **Local winds.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 655–672. 15 figs., 3 tables, 75 refs., 10 equations.) **DWB**—The principles of antitriptic winds are discussed. Land and sea breezes are illustrated by Danzig and Hook of Holland and aerology by Batavia. Mechanism is explained, geographical seasonal distribution, vertical structure and range set out. Types are "minor," beginning on flat beaches, and retarded "cold front," developed against gradient wind. A revised theory is given, based on a circulation cell. Mountain winds are classified, with examples from Alps, into thermal slope, glacier and winds in large valleys, e.g., Inn and the abnormal Maloja wind. Theory is based on WAGNER's combination of thermal slope and valley. Orographic disturbances of general wind include föhn (chinook), "free föhn" and lee wave phenomena (Moazagotl), cold slope, gradient winds (bora) and mistral which includes also a jet effect. *Subject Headings:* **1. Bora 2. Föhn winds 3. Land and sea breezes 4. Local winds 5. Mistral 6. Moazagotl winds.**—*C.E.P.B.*

3.7–4 551.511:551.515

Eady, E. T., **The quantitative theory of cyclone development.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 464–469. fig., 4 refs.) **MH-BH, DWB**—A philosophical discussion of disturbed atmospheric motions. "In each system there exists a disturbance of maximum growth-rate . . . which is therefore the most probable development." Author explains the basic equations of nascent cyclones, growing rapidly enough for friction and radiation terms to be neglected. He classifies unstable fluid motion into: gravitational (barotropic, deep narrow cells); centrifugal (dynamic, flat shallow cells); gravitational-centrifugal; baroclinic (leading to one dominant wave length); generalized vertical-overturning instability; and Helmholtz (horizontal overturning at a velocity discontinuity, forming waves unstable below a critical length). *Subject Headings:* **1. Cyclogenesis 2. Instability 3. Mechanics of the atmosphere.**—*C.E.P.B.*

3.7–5 551.541:551.551

§*Freeman, John C., **The solution of nonlinear meteorological problems by the method of characteristics.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 421–433, 15 figs., table, 35 equations, 25 refs.) **MH-BH, DWB**—Describes a method of analyzing flow interrupted by "jumps." Cases considered are: expansive wave in an inversion between mountain ranges when air begins to flow out at one end, and compression wave when air flows in. An advancing pressure jump develops. Associated weather changes, e.g., at a prefrontal squall line, are summarized. In a sequence of alternating expansion waves and pressure jumps each member tends to overtake preceding one. Chart for May 16, 1948, shows analysis of a pressure jump as a discontinuity. Other points discussed are cyclogenesis, tornado genesis and possible use in forecasting. Wind field east of S. America is compared

with computed Prandtl-Meyer expansion wave. Several applications in progress or possible are mentioned. *Subject Headings*: **1. Statistical techniques 2. Pressure jump.**—*C.E.P.B.*

3.7–6 551.511(02)

Koschmieder, Harald Hans, **Dynamische Meteorologie.** [Dynamic meteorology.] 3rd enl. ed. Leipzig, Geest & Portig, **1951.** 404 p. diagrs., graphs, tables, biblio. **DWB**—The first edition of KOSCHMIEDER's text came out in 1933, and along with the similar works of EXNER, BJERKNES et al. "Physikalische Hydrodynamik," and BRUNT, became one of the classics in the field of dynamic meteorology. The second edition (1941) was greatly improved by including theoretical work of REFSDAL, NORMAND, ROBITZSCH, ROSSBY, JEFFREYS, PRANDTL, LYRA, LETTAU and others in the fields of thermodynamics, general circulation, wave motion, energy exchange and transport, turbulence, etc. The third edition is only slightly revised, containing some of the synoptic and aerological developments of such authors as SCHERHAG, RAETHJEN, SVERDRUP, HAURWITZ, PALMÉN and ROSSBY. On p. 327–341 and 209–225 a very extensive treatment is given of the general and LYRA's special theory of vertical currents (for soaring, Moazagotl cloud formation, convective activity, etc.), with applications and schematic diagrams. The effect of mountain ranges on the flow of air, waves on a tropospheric inversion or on the tropopause; the Ekman spiral, austausch, resonance in the atmosphere, föhn theory, cloud physics (change of state, energy changes, etc.) and many other practical problems are treated theoretically. Of course all the usual aspects of theoretical and practical dynamic meteorology (general circulation, gradient winds, adiabatic changes, evaluation of aerological soundings, frictional influences, etc.) are treated fully. *Subject Headings:* **1. Dynamic meteorology 2. Vertical motion theory 3. Textbooks.**—*M.R.*

3.7–7 551.511:551.551

Lettau, Heinz, **Diffusion in the upper atmosphere.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 320–333. 4 figs., 6 tables, 38 refs., 99 equations.) **MH-BH, DWB**—Using the basic equation of CHAPMAN and COWLING for molecular diffusion where the thermal diffusion velocity can be disregarded, and the equation for eddy diffusion, the author discusses the resulting atmospheric diffusion from different points of view. A medium of an N_2 atmosphere is assumed. The general solutions for diffusion in the vertical under steady conditions are given. The border cases are the states of maximum mixture and of maximum separation or the Dalton atmosphere. The general case of partial separation is discussed. The effects of sources and sinks must be considered, for example, for the diffusion of helium, carbon dioxide, ozone and atomic oxygen. Results are obtained for the diffusion of dust. More complicated is the solution for the vertical diffusion under unsteady conditions. The time required for establishing equilibrium can be calculated. A computation is carried out for argon. As an example for three-dimensional diffusion the meridional and annual variations of total ozone are examined. *Subject Headings:* **1. Molecular diffusion 2. Atmospheric diffusion 3. Upper atmosphere 4. Turbulence theory.**—*A.A.*

3.7–8 551.511

Miller, James E., **Energy equations.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 483–491. 16 refs., 34 equations.) **MH-BH, DWB**—Concepts of work, energy and energy flux in natural processes, the first law of thermodynamics and the law of kinetic energy on a rotating earth are set out and combined in a total energy law. Basic energy equations useful in meteorological problems are derived and the method of integrating by volume over a large inhomogeneous system is explained. Some of the terms cannot be evaluated from ordinary observations (e.g., anemometers are too large and slow) and a new analysis is given involving mean and deviations. Energy equations are transformed to apply to averaged properties and such derivations as RICHARDSON's criterion and MARGULES' models of energy transformation are discussed. But the general equations cannot be applied to the real atmosphere until more is known about eddy terms. *Subject Heading:* **1. Energy equations.**—*C.E.P.B.*

3.7–9 551.501.45:551.521.1

Nicolet, Marcel and Dogniaux, R., **Étude de la radiation globale du soleil.** [Study of the global radiation of the sun.] *Belgium, Institut Royal Météorologique, Mémoires*, v. 47, **1951.**

50 p. 2 plates, 6 tables, refs. **Ensoleillement et orientation en Belgique. IV. Rayonnement reçu sur une surface horizontale.** [Insolation and orientation in Belgium. IV. Radiation on a horizontal surface.] *Ibid.*, v. 49, **1951.** 12 p. 7 graphs, 2 fold. tables. **MH-BH**—Authors describe a method of calculating sun and sky radiation on a horizontal surface from sunshine duration and cloudiness. Direct solar radiation $S = S_0$ is radiation on a perfectly clear day, s and s_0 are durations of sunshine corresponding to S and S_0, and $n = 1 - 0.8\ S/S_0$. Sky radiation is computed from clear sky and clouds. Constants are determined from radiation and sunshine data at Uccle (Belgium) 1948–50. Calculated and observed values agree well. Earlier methods, e.g., ANGSTRÖM's are compared. In the second paper table and large scale graphs give for each decade (1901–30) calculated averages of solar and sky radiation, total (global) and ratio sky/global, for very fine weather, favorable, average and unfavorable conditions and overcast sky. Totals are also given for each year. (*See item* No. 2.11–91 in Nov. 1951 *Meteorological Abstracts* for Pts. I–III.) *Subject Headings:* **1. Radiation calculations 2. Uccle, Belgium.**—*C.E.P.B.*

3.7–10 551.584:551.586:63:551.501.4(02)(47)

Sapozhnikova, Serafima Afanas'evna, **Mikroklimat i mestnyĭ klimat.** [Microclimate and local climate.] Leningrad, Gidromet. Izdat., **1950.** 239 p. charts, diagrs., tables, graphs, equations. **MH-BH**—A textbook for geography and meteorology students in the universities and hydrometeorological service training centers, covering the latest concepts of micrometeorology and the climate of small areas (fields, forests, valleys, cities, etc.). The first section covers the physical basis of micro- or local climate (heat and radiative balance, heat exchange in soil and from soil to air, turbulent exchange, evaporative heat loss and diurnal variation of these factors, advection, etc.); section 2 deals with stability (inversions, wind profile and micro-fluctuations of temperature); section 3 with the microclimate of the soil and overlying layer of air (climate in crops, effects of snow cover, slopes, etc.); section 4 with local climates (mountains, cities, forests, and local variations of wind, cloudiness, precipitation, humidity and temperature; section 5 covers the methods of combatting heat, drought, frost and wind by using shelter belts and new methods of cultivation; section 6 discusses methods of research or investigation in micro- or local climatology (accuracy of observation, instruments and methods of observation, networks, anemometry, thermometry, fruit frost protection, plants as indicators of climate (phenology), compilation of records, length of record, how to adapt short records, etc.) The work is full of schematic diagrams and representative tables of data, charts and graphs. At the beginning is a review of the history or development of micro- and local climatology. The chief emphasis is on application to agriculture and town planning or landscape gardening. The work is comparable to that of GEIGER, though more brief and with application and references confined to Soviet sources. *Subject Headings:* **1. Microclimatology 2. Mesoclimatology 3. Agricultural climatology 4. Climatic control 5. Observation techniques 6. Textbooks 7. U.S.S.R.**—*M.R.*

GENERAL METEOROLOGY

3.7–11 551.5:016 551.58

†Knoch, Karl and Blüthgen, J., **Klimatologie und Meteorologie, 1929–1938.** [Climatology and meteorology, 1929–1938.] *Geographisches Jahrbuch*, Gotha, 58(2):252–478, **1943/47;** 59(1):4–217, **1948. DLC**—In v. 58(2) is to be found the first half (2200 references) and in 59(1) the second half (2000 refs.) of this excellent bibliography and report on progress in at least 200 separate branches of meteorology and climatology during the period 1929–1938. Each section contains a score or more of references on some narrow subject (i.e., periodicals, visibility, turbulence, ozone content, color of the sky), followed by a brief running account of progress as deduced from the references cited. Most of the references are to German literature but none of the important foreign references which were available in the Wetterdienst library are omitted. The scope of the subject matter is as broad as the field of pure and applied meteorology and climatology. The major headings found in the first part are: I. General Meteorology, Climatology and Aerology; II. Observatories, Institutes and Networks; III. Yearbooks and Reports; IV. IMO Conferences; V. Bibliographic Aids (handbooks, periodicals

and bibliographies); VI. Historical; VII. Atmosphere; VIII. Radiation; IX. Temperature of Air; X. Earth and Snow Temperature; XI. Pressure; XII. Atmospheric Circulation (general and local). The second part covers: XIII. Water Vapor and Hydrometeors; XIV. Atmospheric Electricity; XV. Climatic Changes; XVI. Local and Microclimatology; XVII. Climatic Classification; XVIII. Applied Climatology. Under applied climatology there are 72 pages (720 references) on climate and man, phenology, agricultural meteorology and climatology, forest meteorology and climate, aeronautical meteorology and climatology, industrial climatology and, finally, artificial influences on climate and weather. No regional climatological breakdowns appear in these two issues, but previous and subsequent issues of *Geographisches Jahrbuch* are rich in references to the climate of particular places. For example: v. 58(2) contains on p. 237–9, 24 references on the climate of Portugal and on p. 285–428 are numerous references to climate of geographical areas in the U.S.A.; separate states (New England, New York, Pennsylvania, Florida, Wisconsin, Michigan, Indiana, Ohio, Kentucky, Minnesota, Nebraska, Kansas, Oklahoma, Texas, Louisiana, Nevada, Utah, Arizona, Washington, Oregon, California and Alaska) have separate sections giving references on climate for period 1931–42. *Subject Headings:* **1. Bibliographies 2. Progress in meteorology 3. Climatology.**—*M.R.*

3.7–12 551.5:016(44)

†Rapport sur l'activité météorologique des services de météorologie et de physique du globe en 1945, 1946 et 1947. [Report on the meteorological activity of the meteorological and geophysical services in 1945, 1946 and 1947.] *International Union of Geodesy and Geophysics, Association of Meteorology, Oslo, 1948, Procès-verbaux,* 3:86–115, Nov. **1950.** 3 figs., biblio. p. 99–115. In French. **DWB**—Consists of a bibliography of more than 300 works on meteorology published in 1945, 1946 and 1947 in France. Works are listed alphabetically by author. *Subject Headings:* **1. Bibliographies 2. France.**—*M.R.*

3.7–13 551.5:06

American Meteorological Society. *Weatherwise,* 4(6):132–133, Dec. **1951.** photo. **DWB**—A brief note on the more important papers presented and a group photograph of the guests attending the conference in Minneapolis, Oct. 9–11, 1951. *Subject Headings*: **1. American Meteorological Society 2. Conferences.**

3.7–14 551.5:06:061(439.1)

Aujeszky, László, **A Magyar Meteorológiai Társaság jubileuma.** [Twenty five years of the Hungarian Meteorological Society.] *Időjárás,* 54(5/6):133–135, May/June **1950. Ünnepi Közgyülésunk eseményei.** [Events of our commemorative meeting.] *Ibid.,* 54(7/8): 221–233, July/Aug. **1950. MH-BH**—The first article is a brief report on a meeting which marked the 25th anniversary of the Society's existence. Resolutions on the formation of special committees for carrying on educational and research projects are listed. The second article contains a detailed account of the meeting with full or partial quotation of several speeches dealing with past and planned scientific, educational, administrative and financial features in the Society's activity. *Subject Headings:* **1. Hungarian Meteorological Society 2. Conferences 3. Hungary.**—*G.T.*

3.7–15 551.5:06:551.510.53(09)(42)

Brunt, David, **The work of the Gassiot Committee of the Royal Society.** *International Union of Geodesy and Geophysics, Association of Meteorology, Oslo, 1948, Procès-verbaux,* 3:143–144, Nov. **1950.** In English. **DWB**—Brief report of problems attacked by this committee since 1942. Main investigations were in physical and chemical properties of upper atmosphere and radiational aspects of stratosphere. *Subject Headings:* **1. Royal Society of London. Gassiot Committee 2. Upper atmosphere research 3. England.**—*M.R.*

3.7–16 551.5:06(09)(437)

Gregor, Alois and Konček, Mikuláš, **La météorologie en Tchecoslovaquie de 1939–1948.** [Meteorology in Czechovslovakia from 1939 to 1948.] *International Union of Geodesy and Geophysics, Association of Meteorology, Oslo, 1948, Procès-verbaux,* 3:227–228, Nov. **1950.** In French. **DWB**—Report on ups and downs of the two services—that at Prague (now under

directorship of Dr. Gregor) and that at Bratislava (under M. Konček). During the period from 1939–1945 the service was run by the Germans. Since the war the entire network in Slovakia, including the central office at Bratislava, had to be reconstructed because of destruction by bombing or fire. The two institutes work together in publishing climatic data and the periodical *Meteorologické Zprávy*. *Subject Headings:* **1. Meteorological services 2. Czechoslovakia.**—*M.R.*

3.7–17 551.5:06

India Meteorological Department Directors' Conference. *Indian Journal of Meteorology and Geophysics*, Delhi, 2(4):294, Oct. 1951. **MH-BH** Discussion of administrative and technical questions, separation of aviation and non-aviation forecasting work, international adoption of uniform storm warning signals for tropical countries, etc. *Subject Headings:* **1. Conferences 2. Weather forecasting 3. India.**—*A.A.*

3.7–18 551.5:06(436)

Lauscher, Friedrich, **Hundertjahrfeier der Zentralanstalt für Meteorologie und Geodynamik in Wien.** [The centennial anniversary of the Central Bureau for Meteorology and Geodynamics at Vienna.] *Wetter und Leben*, 3(9–10):193–195, Nov. 1951. **DWB**—Names of distinguished meteorologists and bioclimatologists who have been associated with the Central Bureau for Meteorology and Geodynamics and also some of the important work carried out are listed. *Subject Headings:* **1. Meteorological societies 2. Austria. Zentralanstalt für Meteorologie und Geodynamik 3. Meteorologists.**—*I.L.D.*

3.7–19 551.5:06(489):551.501(988)

Petersen, Helge, **Meteorology in Denmark.** *International Union of Geodesy and Geophysics, Association of Meteorology, Oslo, 1948, Procès-verbaux*, 3:8–9, Nov. 1950. In English. **DWB**—Revival of service in Denmark in 1947, and establishment of meteorological service in Greenland since the war (20 stations report surface data and 5 upper air). Work of Central Bureau for Liquidation of International Polar Year (1932–1933) mentioned. *Subject Headings:* **1. Meteorological services 2. International Polar Year 1932–1933 3. Denmark 4. Greenland.**—*M.R.*

3.7–20 551.5:06(05)

Philippines. Weather Bureau. **The Elements.** 2(7), July 1951. Mimeographed. First issue Jan. 1950. **DWB** The purpose of this mimeographed pamphlet (which comes out monthly) is to allow members of the Philippine Weather Bureau to exchange views for improvement of the service. Contains short informative articles, letters, news, questions and answers and description of service activities. *Subject Headings:* **1. Meteorological service bulletins 2. Meteorological services 3. Philippine Islands.** *M.R.*

3.7–21 551.5:06(09)(54)

Progress of meteorology in India, 1939 1948. *International Union of Geodesy and Geophysics, Association of Meteorology, Oslo, 1948, Procès-verbaux*, 3:159–170, Nov. 1950. map. 31 refs. In English. **DWB** History and functions of the meteorological services in India (1791–date) sketched briefly. Expansion during war, forecast organization; observations; services for airways, communications, marine, agriculture, hydrology, climatology, atmospheric research, teaching and publications are treated separately under the various heads. A chart shows the location of various classes of stations. *Subject Headings:* **1. Meteorological services 2. Meteorological research 3. Progress in meteorology 4. History of meteorology 5. India.**—*M.R.*

3.7–22 551.5:06(09)(47)

Tverskoĭ, Pavel Nikolaevich, **Razvitie meteorologii v SSSR.** [Development of meteorology in the U.S.S.R.] Leningrad, Gidromet. Izdat., 1949. 53 p. 11 figs., ports. **DLC**—A brief history of meteorology in Russia from its beginnings during the time of Peter the Great to the present. The organization and activity of the Central Geophysical Observatory, the meteorological theories of D. I. Mendeleev, the work of the Geographical Society and the in-

vestigations of A. I. Voeĭkov are reviewed. The second chapter is concerned with the development of the various branches of meteorology since the organization of the National Hydrometeorological Service, namely: climatology, dynamic meteorology, synoptic meteorology, long range forecasting, actinometry, atmospheric optics, atmospheric electricity, aerology and experimental meteorology. Education and training of personnel and meteorological literature are also discussed, and a list of prominent Soviet meteorologists is given. *Subject Headings:* **1. Meteorological organizations 2. History of meteorology 3. Meteorologists 4. U.S.S.R.**—*N.S.*

3.7–23 551.5:06

World Meteorological Organization. *Indian Journal of Meteorology and Geophysics*, Delhi, 2(3):213–215, July 1951. **MH-BH** Report on the conference of directors of the International Meteorological Organization (IMO) held March 15–17, 1951 and on the first congress of the World Meteorological Organization (WMO) on March 19–April 28, 1951 in Paris is given. The organization of the latter is described and a list of its subdivisions and commissions together with the heads of each are included. *Subject Headings:* **1. Meteorological organizations 2. World Meteorological Organization 3. Conferences.**—*A.A.*

3.7–24 551.5(02)

Parker, Bertha Morris (*Univ. of Chicago, Lab. School*), **The air about us.** Evanston, Ill., Row, Peterson, 1950. 34 p. illus. **DLC** The physical aspect of air and its motion is discussed in terms adapted to the standard of pupils in the intermediate grades of elementary education. Many examples of simple observations are shown to familiarize the child with the effect of air, of pressure and wind, on basic physical phenomena. Experiments are described and the principles on which they are based explained. The text is accompanied by many colorful illustrations. *Subject Headings:* **1. Elementary meteorology 2. Juvenile literature 3. Textbooks.**—*G.T.*

METEOROLOGICAL OBSERVATIONS AND INSTRUMENTS

METHODS OF OBSERVATION

(*See also items:* 3.7–9, 3.7–10, 3.7–110, 3.7–116, 3.7–133, 3.6–149, 3.7–205)

3.7–25 551.501:341.24(729.1)

U. S. Treaties, etc. 1945–, **Weather stations cooperative program in Cuba. Agreement between the United States of America and Cuba, effected by exchange of notes signed at Havana, June 30, 1950, entered into force, July 1, 1950.** *U. S. Dept. of State, Publication* 4016, 1951. 7 p. **DWB**—An agreement effective through June 30, 1953, whereby the U. S. Weather Bureau will furnish radiosonde, rawinsonde and pilot balloon equipment for soundings at Havana and Camaguey, and will instruct personnel, provide technicians and pay for other facilities, and the Cuban Meteorological Service will provide quarters, facilities and personnel and transmit the observations twice a day. *Subject Headings:* **1. Treaties 2. Meteorological services 3. Cuba. I. Cuba. Treaties. United States. II. U. S. Weather Bureau.** *M.R.*

3.7–26 551.501:341.24(72)

U. S. Treaties, etc. 1945–, **Weather stations in Mexico, cooperative program in Mexico. . . .** *U. S. Dept. of State, Publication* 3316, 1948. 7 p. Text in Spanish and English. **DWB**—An exchange of notes between the U. S. Ambassador to Mexico and the Mexican Minister of Foreign Affairs arranging for the U. S. Weather Bureau to assist the Mexican Weather Service in setting up 9 weather stations in northern Mexico for daily weather reporting (every 3 hours) for the benefit and protection of aviation in the U. S. A. and Mexico. An attached memorandum lists the 11 major stations in northern Mexico, describes the various networks and states that the Mexican service had a total of 346 stations in 1940, 614 in 1941, 804 in 1942 and 868 in 1943. These are broken down by classes—meteorological, evaporation, temperature and rainfall and rainfall alone. *Subject Headings*: **1. Meteorological services 2. Treaties 3. Mexico. I. U. S. Weather Bureau. II. Mexico. Treaties. United States.**—*M.R.*

3.7–27 551.501(02

U. S. Weather Bureau, **WBAN manual of surface observations.** 6th ed. rev. U. S. Weather Bureau Addendum, effective Nov. 1, 1951. *U. S. Weather Bureau, Circular N* Nov. **1951.** n.p. loose leaf. photos, tables, graphs, diagrs. **DWB**—Additional instruction for use at U. S. Weather Bureau stations, not covered in the general issue of *Circular N* (6th ed.) (*see item* No. 2.8–14 in Aug. 1951 *Meteorological Abstracts*). The material is generally applicable for maintenance of specialized equipment and keeping special forms not used by other services in the United States. The particular chapters refer to construction and maintenance of equipment or records and are as follows: Chap. A1—nephoscopes, ceilometers (projector, detector and recorder), ceiling light projectors, clinometers and ceiling balloons; A2—visibility observations; A3—ice accretion, tornadoes, auroras, frost, freeze and rime; A4—various rain and snow gages and recorders; A5—temperature instruments (thermometers, telethermoscopes, thermographs, telepsychrometers, instrument shelters, etc.); A6—psychrometric computations; A7—pressure instruments (mercurial and aneroid barometers and barographs), altimeter corrections, etc.; A8—wind instruments and recorders; A9—special types of observations; A10—pilots reports; A11—entries on form WBAN-10; A12—preparation and distribution of observers forms; A13—multiple registers and sunshine recorders; A14—verification of forms and punched cards; A15—radar observations. The sections are amply illustrated with line drawings, photographs, wiring diagrams, sample forms and in addition contain many conversion tables or nomograms. The whole volume is also well indexed. *Subject Headings:* **1. Observers manuals 2. Surface observations 3. Meteorological instruments 4. Conversion tables 5. Nomograms.**—*M.R.*

3.7–28 551.501.4:656.7:06(02

International Civil Aviation Organization, **Combined meteorological tables for international air navigation.** *Organisation de l'Aviation Civile Internationale, Doc.* 7155-MET/522 **1951.** chiefly tables. Text in English, French and Spanish. **DWB**—Supplementary regional procedures which went into effect Oct. 15, 1951 are contained in this manual, along with much useful information, tables and charts, such as one which shows the boundaries of the various regions on the earth, an index of states or countries in French or English, a list of meteorological offices providing service for international flight operations and available services at these places, responsibilities of each service, exchanges and broadcasts of information and forecasts in the various regions, collecting centers for reports from aircraft, etc. *Subject Headings:* **1. Aeronautical meteorological services 2. Manuals 3. Meteorological services 4. Tables.**—*M.R.*

3.7–29 551.501.4:551.510.3

Williams, N. R. and Coulsen, K. L., **Methods developed at the Naval Ordnance Test Station for rapid calculation of air density.** *U. S. Naval Ordnance Test Station, Navord Report* 1910, Nots 437, Aug. 28, **1951.** 16 p. 7 tables, diagr., 10 refs., 12 equations. **DWB**—Data on air density are presented. They include composition of dry air, saturation pressure of water vapor in metric and English measures, computation and conversion of air densities, errors in pressure and temperature, acceleration of gravity, factor for computing air density over NOTS and average values of air density for latitude 45° at various heights. Equations for calculating density in various units and examples of their application are given. A circular atmospheric density calculating slide rule is depicted and its use for quick computation explained. A distribution list of the report is attached. *Subject Headings:* **1. Air density measurement 2. Slide rules.**—*G.T.*

3.7–30 551.501.42:551.521.32:7

Foxhall, William B. (*New York*), **Handling sun loads on buildings.** *Heating and Ventilating*, New York, 48(4):76–80, April **1951.** 5 figs., 3 tables, 8 refs. **DLC**—Author sums up methods of calculating sun loads as found in various recent publications. The construction of a chart showing the pathway of the sun at any latitude throughout the year is explained. Equations are presented for calculating angles of incidence, length and depth of shadow, eave overhang and solar intensity. Data for effective solar absorption by various paints and

materials, heat transmission coefficient of glass and fraction of incident solar radiation through glass are given in tables. *Subject Headings:* **1. Sun loads 2. Solar radiation effects 3. Building materials 4. Air conditioning.**—*G.T.*

3.7–31 551.501.42:551.508

Janiszewski, Feliks, **Opracowanie paskow przyrzadow samopiszacych.** [Working up of automatically recorded charts.] *Gazeta Obserwatora PIHM*, Warsaw, 3(9):14–15, Sept. **1950. Tablica pomocnicza do opracowywania diagramow pryzrzadow samopiszacych.** [Auxiliary table for the working up of diagrams of self-recording instruments.] *Ibid.*, 3(11):11–12, Nov. **1950.** table. **DLC**—In the first article the method of working up and analyzing of charts from self-recording instruments (barograms, thermograms, rainfall and sunshine recorders) as used in the Polish Meteorological Service is presented and explained. In the second, a supplementary table to the description of the above method is given. *Subject Headings:* **1. Reduction tables 2. Record analysis 3. Recording equipment 4. Meteorological instruments.**—*A.M.P.*

3.7–32 551.501.42:551.508.41

Lauscher, Friedrich, **Ergebnisse rechnerischer Barometerprüfung aus den Jahren 1946 bis 1950.** [Results of statistical barometer testing during 1946–1950.] *Austria, Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch*, v. 87, **1950.** Abhang 1, p. D1–2. table. **DWB**—Summarizes results of quarterly statistical checking of barometer readings at Austrian stations 1946–1950. *Subject Heading:* **1. Barometer reduction.**—*C.E.P.B.*

3.7–33 551.501.45:519

Meyer-Eppler, Werner (*Bonn, Germany*), **Untersuchungen zur Auffindung verborgener nicht-sinusförmiger Periodizitäten in Schwingungsaufzeichnungen.** [Investigations on the discovery of hidden non-sinusoidal periodicities in oscillations records.] *Geofisica Pura e Applicata*, 20:1–14, July–Dec. **1951.** 8 figs., 10 refs., 36 equations. In German, German and English summaries p. 1. **MH-BH**—In the past, spectral analysis of oscillations was based upon the Fourier transform almost exclusively. This spectral decomposition is shown to be merely a special case of a more general type of decomposition which is based upon the concept of exhaustion largely used in periodographic analysis. The exhaustion principle is extended to continuous variable shift periods, the result being an integral transform similar to the Fourier transform, with the exception that the cosine function is replaced by a series of equidistant Dirac functions. A periodograph is described which permits continuous exhaustion analysis of oscillogram patterns by means of an optical projection device. *Subject Headings:* **1. Periodogram analysis 2. Periodicities.**—*Author's abstract.*

3.7–34 551.501.6:551.509.21

Canada. Meteorological Division, **The structure and representation of occlusions and upper fronts.** *Canada, Meteorological Division, Cir.* 2004, Tec 98, Sept. 11, **1951.** 10 p. 4 figs., 12 refs. **MH-BH**—Outlines official Canadian methods of representing fronts (plan and vertical section) in color and monochrome. Types are: occluded frontal systems, troughs of warm air aloft, upper cold and warm fronts over residual valley air, and cold dome. The development and characteristics are described. *Subject Headings:* **1. Frontal structure 2. Graphical presentation.**—*C.E.P.B.*

3.7–35 551.501.6:551.524.4

Gol'dfarb, M. S., **Grafik dlia vychisleniia vertikal'nogo gradienta temperatury.** [Graph for computation of the vertical temperature gradient.] *Meteorologiia i Gidrologiia*, No. 2:53, Oct. **1950.** fig. **DLC**—An example of a nomogram for computing lapse rate (limits of gradient are from 0.05° to 1.00°, and the accuracy of computing 0.01) by the following formula $V=\Delta T/\Delta H$. *Subject Headings:* **1. Vertical temperature gradient 2. Nomograms.**—*N.T.Z.*

3.7–36 551.501.6:550.34:550.38(496)

*Turkey. Istanbul-Kandilli, Rasathane, **Meteoroloji rasatlari.** [Meteorological bulletin.] No. 1–, 1934–. First issue received No. 1, Jan./March 1934. Last issue received No. 55, **1949.** Quarterly during 1934–44. Annual 1945–. Title varies. Tables and illustrative

material in French and Turkish. **DLC**—Tables give data obtained at the Kandilli Observato for pressure, relative humidity, sunshine duration, sun temperature (black and white bull wind frequencies, clouds, number of days with rain or snow, oceanographic, magnetic a seismologic data based on 3 or more observations a day, for each month and quarter. Al there are extensive tables of hourly values of these elements and of earth temperatures at 10, 20, 50, 100 and 200 cm depth, summarized by decades and months. Brief textual su maries plus graphical presentation of some of the data are included. Data vary somewha *Subject Headings*: **1. Meteorological bulletins 2. Climatic data 3. Seismology 4. Terrestr magnetism 5. Istanbul-Kandilli Observatory 6. Turkey.**—*M.R.*

3.7–37 551.501.8:551.577.

Bunting, Donald C. and Latour, Marinus H., **Radar-rainfall studies in Ohio.** *Americ Meteorological Society, Bulletin*, 32(8):289–294, Oct. **1951.** 8 figs., 9 refs. **MH-BH**—Repo on quantitative measurements of precipitation by radar conducted at Wilmington, Ohio 1948, by a University of Florida research team. Through gradually reducing the rad receiver gain, sequences of varying "power-received" contours are obtained from whi isohyets are calculated using an empirical equation derived by R. Wexler. Results a compared with those obtained from rain gage data and claimed to be satisfactory allowi for certain sources of error. A radar photographic sequence is presented and results of t experiments shown in charts. *Subject Headings*: **1. Radar rain detection 2. Rain intensiti 3. Wilmington, Ohio.**—*G.T.*

3.7–38 551.501

Kennedy, E. Donald, **Weather and electronics research.** *Florida. University, Engineeri and Industrial Experiment Station, Engineering Progress*, 4(4), *Leaflet Ser.*, No. 13, April 195 2 p. 6 figs. Reprint from: *Journal of Southern Research*, Jan. **1950. DWB**—Major researc projects now in progress at the University of Florida include studies of microwave reflectio from rainstorms (using radar) and sferics studies, that is the measurement of intensity a location of sources of atmospheric parasites in connection with thunderstorm areas and hurr canes. Location of thunderstorms at distances of 300 miles is possible, the author claim Examples of records are included. *Subject Headings:* **1. Meteorological research 2. Rada storm detection 3. Microwave reflections 4. Sferics. I. Florida. University. Engineeri and Industrial Experiment Station.**—*M.R.*

OBSERVATIONAL DATA

(*See also items:* 3.7–40, 3.7–50, 3.7–147, 3.7–159, 3.7–174, 3.7–186, 3.7–208)

3.7–39 551.506.1:551.506.7(6

*Algeria. Service Météorologique, **Resumé mensuel du temps en Algérie du Nord e du Sahara.** [Monthly weather summary for Algeria and the Sahara.] No. 1, Jan. 195 36 p. tables. **DWB**—All available daily surface and aerological data for a score of firs order stations in Algeria, including wind aloft data for 4 stations and radiosonde data fo Algiers (Maison Blanche) and Aoulef-el-Arab (in the central desert) are presented for th given month in a novel manner, although reproduced in handwriting. The occurrences hydrometeors, heat waves and peculiar synoptic conditions are vividly presented. (*See al* item No. 3A–294 in Jan. 1952 *Meteorological Abstracts.*) *Subject Headings:* **1. Monthly sum maries 2. Observational data 3. Algeria 4. Sahara Desert.**—*M.R.*

3.7–40 551.506.1 551.582.2(4

*Alvarez Castrillón y Bustelo, Manuel, **Resumen de las observaciones meteorológica correspondientes al año 1949.** [Resumé of meteorological observations for 1949.] *Barcelon Observatorio Fabra, Boletín, Sección Meteorológica y Sísmica*, No. 38:173–223, **1951.** entire tables. **DWB**—The data include: monthly and annual means, extremes and frequenci of pressure, temperature, precipitation and humidity; daily and decadal maximum, minimu and range and the mean temperature (0, 4, 8, 12, 16 and 20 h); minimum soil temperatu

0.7 m; precipitation amount, pressure and evaporation; wind direction and velocity (0–4, 4–8, 8–12, 12–16, 16–20, 20–24 h); monthly wind frequencies from 16 directions; daily observations (0, 4, 8, 12, 16 and 20 h) and 10-day means of relative humidity. *Subject Headings:* **1. Climatic data 2. Annual reports 3. Barcelona, Spain. I. (R.) Academia de Ciencias y Artes de Barcelona.**—*M.L.R.*

3.7–41 551.506.1(058)(436) 550.3

*Austria. Zentralanstalt für Meteorologie und Geodynamik, **Jahrbuch, 1950. Neue Folge, Band 87.** [Yearbook 1950. New Ser. v. 87.] Vienna, **1951.** Paged by sections. Chiefly tables, figs. *Austria, Zentralanstalt für Meteorologie und Geodynamik, Publikation* No. 162. **DWB**—This yearbook follows the usual plan—daily observations at Vienna and Sonnblick, monthly and yearly summaries for numerous other stations, evaluation of autographic records, etc. and a series of special articles (some of these are abstracted separately, others, not abstracted, deal with phenology, bad weather, thunder and hail, in 1951). *Subject Headings:* **1. Observational data 2. Yearbooks 3. Austria.**—*C.E.P.B.*

3.7–42 551.506.1

Callendar, G. S., **The Greenwich temperature record.** *Royal Meteorological Society, Quarterly Journal,* 78(336):265–266, April, **1952.** fig., 2 refs. **DWB**—Plots of 10, 30 and 50 year means of temperature at Greenwich 1841–1949 show a steady rise since 1900. The difference of 0.55°F. (1900–24 to 1925–49) agrees with other stations in S.E. England, both urban and rural. *Subject Headings:* **1. Temperature variations 2. Greenwich, England.**—*C.E.P.B.*

3.7–43 551.506.1:06(676)

East Africa High Commission. Meteorological Department, **Report for the year 1949.** Nairobi, **1950.** 11 p. Appendix C: **Publications of the Department. DWB**—Report on changes in directorship (D. A. DAVIES assuming full charge previously taken by temporary director W. A. GRINSTED), on finance, organization, communications, international cooperation, printing, library, climatology, instruments and equipment, forecast offices, electronics (radiosonde, etc.) stations of 5 classes, research, inspecting and finally detailed organization chart, a list of publications, and table showing numbers of stations (1604 in all) of each class in Kenya, Uganda, Tanganyika, Zanzibar and the Seychelles. *Subject Headings:* **1. Annual reports 2. Meteorological services 3. Meteorological networks 4. British East Africa. I. Davies, D. A. II. Grinsted, W. A.**—*M.R.*

3.7–44 551.506.1:551.582.2(6,5,261)

*France. Service des Statistiques, **Annuaire statistique de l'Union Française Outre-Mer, 1939–1949.** v. 1. [Statistical annual of the French Overseas Union, 1939–1949. v. 1.] Paris, Imprimerie Nationale de France, **1951.** 453 p. chiefly tables. **DWB**—Chap. A (p. 13–45) "Climatologie" contains monthly and annual summaries of the usual meteorological elements from a number of stations in French West Africa, French Equatorial Africa, Togo, Cameroons, Madagascar and its dependencies, French Somaliland, Indochina, New Caledonia and its dependencies, French Oceania, island possessions in the north Atlantic, North Africa, Guadeloupe, Martinique and French Guiana. The period of record varies; for most stations it is for 1949 but in some cases records for a longer period for all the stations in an area are summarized, e.g., for Tunisia average monthly, annual and seasonal temperature for the period 1901–1940 for 20 stations is presented. Geographic coordinates and height are given for each station. *Subject Headings:* **1. Annual reports 2. Climatic data 3. French Overseas Union.**—*M.L.R.*

3.7–45 551.506.1:551.46:06(058)(261.2)

†Hamburg. Deutsches Hydrographisches Institut, **Jahresbericht Nr. 5, 1950.** [Annual Report No. 5, 1950.] Hamburg, **1951.** 72 p. 6 tables, charts and plates appended, refs. English edition: *idem,* Annual Report No. 5. **DWB**—An elaborate report on the organization, functions and activities of the D.H.I. for the year 1950, including accounts of nautical surveys in the North Sea, publications, charts, instrumental development, library, archives, punched

card work and personnel. A long list of scientific and technical publications of the Institute and of many of the members of the Institute. *Subject Headings*: **1. Hydrography 2. Hydrographic institutes 3. Yearbooks 4. Publication lists 5. North Sea.**—*M.R.*

3.7–46 551.506.1:551.582(910)

*Indonesia. (K.) Magnetisch en Meteorologisch Observatorium te Djakarta, **Observations made at the Royal Magnetic and Meteorological Observatory at Djaharta. A. Meteorological observations. Vol. 65, 1942. 1949.** 63 p. tables. **DWB**—This volume contains hourly readings (for every day of the year) of pressure, dry and wet bulb temperature, relative humidity, wind direction and velocity, cloudiness, sunshine and rainfall. Also data are given on hourly means and mean daily variations in 1942 of pressure, temperature, relative humidity, cloudiness, wind velocity and rainfall, mean daily maxima and minima and range of temperature, relative humidity and pressure, departure of daily means from annual means, evaporation—mean hourly and daily and daily and monthly amount—sunshine duration, occurrence of calms and winds, mean wind velocity and monthly summaries and maxima of rainfall. *Subject Headings:* **1. Climate of Indonesia 2. Djakarta, Indonesia.**—*I.L.D.*

3.7–47 551.506.1:551.579(435.9)

*Luxembourg. Service Météorologique et Hydrographique, **Annuaire Météorologique et Hydrographique 1949.** [Meteorological and hydrographic annual, 1949.] Luxembourg, **1951.** 124 p. mostly tables, diagr. **DWB**—A new, annual publication supplementing the data contained in "Un siècle d'observations météorologiques" by Eugene Lehr, and containing all of the available meteorological and hydrologic data for the Grand Duchy of Luxembourg. A list of 26 stations (1st and 2nd order, and rainfall stations) and the elevation and observer at each, daily observations at Luxembourg City, Echternach and Clervaux, monthly and annual summaries for all the other stations, and water level records for 20 river stations in 4 river basins are presented. Daily maxima and minima temperatures are given for 10 stations. *Subject Headings:* **1. Annual summaries 2. Yearbooks 3. Hydrologic data 4. Luxembourg I. Gillen, Mathias (*ed.*).**—*M.R*

3.7–48 551.506.1:551.582(691)

*Madagascar. Service Météorologique de Madagascar et Dépendances, **Resumé mensuel du temps à Madagascar.** [Monthly review of weather in Madagascar.] Dec. 1950–April **1951.** 5 pieces. chiefly tables. **DWB**—A monthly summary of weather conditions in Madagascar including positions of intertropical fronts and movements of tropical cyclones, rainfall (given as totals and % of normal) for each region of Madagascar, pressure, temperature, humidity, hours of sunshine, surface winds, winds aloft (6 stations), hail, lightning and general day by day weather. Data for 45 stations are given in tables. Charts show rainfall amounts, percentage of normal and number of days with rain at numerous places. *Subject Headings:* **1. Monthly bulletins 2. Climate of Madagascar 3. Madagascar. I. Minjoz, Robert, (*ed.*) II. Perio, J., (*ed.*).**—*M.R.*

3.7–49 551.506.1:551.582.2(679)

*Mozambique. Observatorio Campos Rodriques, Lourenço-Marques, **Boletim mensal das observações meteorológicas feitas nos postos da Colónia.** [Monthly bulletin of meteorological observations made at the stations of the Colony.] First item received: Ano 1, Nos. 1–4/9, April–July/Dec. 1934, last received: Ano 17, Nos. 7–9, July Sept. 1950. Lourenço Marques, Impr. Nacional, **1935–1951.** mostly tables. **DWB**—The latest issue received contains the following data: twice-daily (7 and 13 hr) pilot balloon observations, daily observations of pressure, temperature, vapor pressure, relative humidity, evaporation, precipitation, sunshine, thrice daily observations (9, 15 and 21 hr) of same data is given for Beira, Quelimane and Mossuril; monthly summaries of the usual meteorological elements for 35 1st and 2nd order stations and 70 climatological stations. Geographic coordinates and altitude are given for all these stations. Normal values, comparison of extremes and totals and general state of the weather for all stations in the Colony are included. *Subject Headings:* **1. Monthly weather reports 2. Climatic data 3. Climate of Mozambique 4. Mozambique. I. Mozambique. Repartição Técnica de Estatística.**—*M.L.R.*

INSTRUMENTS

(*See also items:* 3.7–31, 3.7–32, 3.7–113, 3.7–146)

3.7–50 551.507.2:551.506.1:058(261.2/3)

*Germany. Meteorologisches Amt für Nordwestdeutschland, **Deutsches Meteorologisches Jahrbuch, 1949. Teil IV. Beobachtungen von deutschen Feuerschiffen der Nord- und Ostsee.** [German Meteorological Yearbook, 1949. Pt. 4, Observations from the German lightships in the North and Baltic Seas.] Hamburg, **1951.** 89 p. **DWB** Observations made 4 times a day at 6 lightships in the North Sea and 3 in the Baltic are tabulated from punched cards based on the 1949 Marine Code. Water temperatures, visibility and weather conditions are based on 8 observations a day at most of the ships, and times of beginning or ending of weather are accurate to within 15 minutes. Monthly and annual summaries include extremes of air and water temperature and frequencies of wind direction (8 points) and speed (Beaufort), cloudiness (0–10) and weather as well as precipitation totals. Means for the 8 (or in some cases 4) observation periods are given for pressure, temperature, wind, cloudiness, etc. Mean difference between air and sea temperature also given. *Subject Headings:* **1. Marine meteorological observation 2. Marine meteorological code 1949 3. Yearbooks 4. Marine meteorological data 5. North Sea 6. Baltic Sea.**—*M.R.*

3.7–51 551.507.2:551.311.1(261)

*U. S. Coast Guard, **International ice observation and ice patrol in the North Atlantic Ocean, season of 1950.** *U. S. Coast Guard, Bulletin*, No. 36, **1951.** 127 p. tables, fold. charts. **DWB**—This number of a series of reports on ice and oceanographic conditions in the North Atlantic (especially in the Grand Bank—Greenland section) contains many features of interest to meteorologists, hydrographers and oceanographers. Results of aerial ice reconnaissance, an analysis of effects of winds and currents on ice movements, sea surface temperatures, soundings giving temperature and salinity at various depths are given in addition to the charts showing number and position of icebergs each month, and isothermal charts based on data obtained each month on different patrols. Five surface ice patrol cruises and 75 ice observation flights were made from Argentia, Newfoundland during the 1950 season. *Subject Headings:* **1. Sea surface temperatures 2. Wind effects 3. Ice movements 4. North Atlantic Ice Patrol 5. Iceberg distribution 6. Airplane weather reconnaissance 7. Grand Bank, Newfoundland. I. Cheney, L. A. II. Soule, Floyd M.**—*M.R.*

3.7–52 551.507.3:551.510.53

Piccard, Auguste, **Tussen aarde en hemel; feiten toekomstromen.** [Between earth and sky; realities and visions of the future.] Introduction by S. W. Visser. Antwerp, Orion Boekhandel, **1948.** 271 p. port., photos, diagrs. Translation of his: "Entre terre et ciel." **DLC**—A Flemish edition of PROF. PICCARD's popular work on the atmosphere, stratosphere, balloon ascents into the stratosphere, rocket research and speculations on interplanetary travel in the future. Separate chapters discuss the following subjects (with excellent photographs to illustrate instruments, equipment, clouds, mountain situations, etc.): structure of the atmosphere, moisture, selective radiation, clouds, aerological observations, forecasts, laminar and turbulent motion of the air, the stratosphere, ascents into the stratosphere, the upper stratosphere and ionosphere, balloon and airplane flights into the stratosphere, atomic energy sources, and trips to planets and stars. Details of 10 stratosphere ascents from 1931 (PICCARD's first ascent) to 1935 (when STEVENS achieved the present record ascent of 22.066 km) are given in a table. The pictures of the stratosphere balloons, their equipment, filling and launching are especially good. The work of JEAN LUGEON, in collaboration with that of PICCARD, is revealed throughout the book. *Subject Headings:* **1. Upper atmosphere 2. Stratospheric research 3. Rocket research 4. Ionosphere 5. Interplanetary flights 6. Balloon ascents. I. Lugeon, Jean II. Visser, S. W.**—*M.R.*

3.7–53 551.507.321.2:551.593.1(99)

Court, Arnold, **Bursting of frozen balloons.** *American Meteorological Society, Bulletin*, 32(8):313–314, Oct. **1951. MH-BH**—The effect of low temperature on the bursting point of balloons of various size and material is discussed. The phenomenon of a balloon's splitting

into two hemispheres, which keep their shape for a few minutes, is discussed. The author claims that cases of splitting images such as DAVE FULTZ reported over San Juan, Puerto Rico (*see item* No. 2.10–186 in Oct. 1951 *Meteorological Abstracts*), may not have been due to refraction phenomena but to such actual bursting as cited above (observed in Little America III in 1941). *Subject Headings:* **1. Pilot balloon bursting 2. Atmospheric refraction 3. Little America III, Antarctica 4. San Juan, Puerto Rico. I. Fultz, Dave.**—*G.T.*

3.7–54 551.507.321.2:661.96

Gill, Gerald C., **A low-pressure hydrogen generator for use in filling radiosonde balloons.** *American Meteorological Society, Bulletin*, 32(8):302–307, Oct. **1951.** 3 figs. **MH-BH** –Author describes a hydrogen generator of his own design which he claims to have adapted to all requirements of practical use at radiosonde stations. Its main feature is a maximum pressure of 4 p.s.i., which eliminates the danger of explosion common with high pressure models. A photograph, a cut-away view and a schematic diagram of the generator are presented. A generating rate of 50 to 250 cu ft per charge, receptiveness for several recharges in rapid succession, satisfactory results at temperatures between −50 and −100°F and easy and inexpensive operation and maintenance are credited to the model. *Subject Headings:* **1. Hydrogen generators 2. Radiosonde balloon inflation.**—*G.T.*

3.7–55 551.507.321.2

U. S. Air Force. Air Proving Ground, **Comparative and functional test of the U. S. Weather Bureau 500-gram and standard balloon ML-391/AM 1400-gram.** Project No. 34824-5, Report, Dec. 9, **1948.** 44 p. tables, photos. **DWB** –Conclusion is that the 1400 gram balloon is superior to the 500 gram balloon because it is better constructed and bursts at a higher altitude in the daytime. However, the 500 gram balloon reached higher altitude at night and takes less gas and a smaller inflation shelter. Both show the same ascension rate characteristics. The 1400 gram balloon is 5 ft in diameter and expands to 6¼ ft when inflated and lifts 3200 grams. Of the 21 larger balloons released in the daytime, 20% reached > 100,000 ft and 50% reached > 90,000 ft. One reached 126,000 ft. *Subject Headings:* **1. Radiosonde balloons 2. Balloon comparisons 3. Balloon ascension rates. I. U. S. Air Force. Project 34824-5.**—*M.R.*

3.7–56 551.508(09)

Blumenstock, David I., **Weather instruments.** *Scientific American*, 185(6):64–70, Dec. **1951.** figs. **DLC**—An excellent popular account of the history of meteorological observations during the past 25,000 years! The invention or development of each major type of instrument is briefly reviewed in chronological order. The first two instruments to come into general use were the rain gage and the wind vane. By 1650 there were two additional instruments, the thermometer and barometer. Then came the anemometer (1668), the psychrometer (ca. 1850) and hair hygrometer. In the exploration of the upper atmosphere the developments were kite observations (Glasgow, 1749), manned balloon observations (Metz, 1783), free balloon soundings (France, 1892), radiosondes, dropsondes, automatic weather stations, radar rain, front and storm detection (1944) and, finally, recent experiments with rockets for exploring the upper stratosphere. *Subject Headings:* **1. History of meteorology 2. Meteorological instruments.**—*M.R.*

3.7–57 551.508.21

Eldridge, R. H., **A comparison of substandard pyrheliometers.** *Royal Meteorological Society, Quarterly Journal*, 78(336):260–264, April, **1952.** 2 figs., table, 6 refs. **DWB**—Describes a comparison of 4 Ångström pyrheliometers and one silver disc type at Kew Observatory using a tungsten lamp, which gave consistent results showing a difference of about 3.5% between Ångström and Smithsonian 1913 scales. *Subject Headings:* **1. Pyrheliometers 2. Instrument comparisons.**—*C.E.P.B.*

3.7–58 551.508.21

Harff, V., **Comparabilité des mesures actinométriques.** [Comparability of actinometric measurements.] *Annales de Géophysique*, 6(3):179–190, July–Sept. **1950.** 12 figs., 2 tables, refs., 30 equations. French and English summaries p. 179. **MH-BH**—From a geometric study of the relationship between the light-receiving surface of a pyrheliometer and the angles of incident light, equations are derived by means of which it is possible to compare and reduce values obtained by different types of pyrheliometers. *Subject Headings:* **1. Instrument comparisons 2. Pyrheliometers.**—*I.L.D.*

3.7–59 551.508.21(09)(494)

Mörikofer, W. and Courvoisier, P., **Report on Davos studies on standard pyrheliometry.** *International Union of Geodesy and Geophysics, Association of Meteorology, Oslo, 1948, Procès-verbaux*, 3:216–226, Nov. **1950.** 8 refs. In English. **DWB**—Report on deficiencies in pyrheliometry and of progress made in overcoming these deficiencies since 1905, and especially that resulting from work at Davos Observatory. Various types of actinometers are discussed. *Subject Headings:* **1. Actinometers 2. Pyrheliometry 3. Davos, Switzerland.**—*M.R.*

3.7–60 551.508.21

Thams, J. Chr., **Erfahrungen mit einem Kompensationspyrheliometer.** [Experience with a compensation pyrheliometer.] *Naturforschende Gesellschaft Graubündens, Chur, Jahresbericht*, 81:73–84, **1948.** 2 figs. Abstracted from reprint. **DWB**—Volochine's modification of Ångström's compensation pyrheliometer is described and the instrumental constant K calculated. Comparisons with other absolute pyrheliometers give $K = 11.00 - 11.04$. The temperature error when used as a relative instrument is found to be small. *Subject Headings:* **1. Pyrheliometers. I. Switzerland. Meteorologische Zentralanstalt.**—*C.E.P.B.*

3.7–61 551.508.23:551.521.11(675)

Schüepp, W., **Comparaison entre les héliographes Campbell-Stokes et Marvin.** [Comparison between the Campbell-Stokes and Marvin sunshine recorders.] *Belgian Congo, Service Météorologique, Bulletin* No. 1:5–15, Jan. **1951.** refs. In French, summaries in French, Dutch, English and German p. 5. **DWB**—For a two months period simultaneous records were kept under similar conditions at Leopoldville (Belgian Congo). The Campbell-Stokes recorder gave better results than the Marvin type instrument used in the U. S. Both instruments are illustrated schematically and described. It is stated that the two types of instruments cannot be easily compared in tropical regions where diffuse radiation is strong since it is hard to determine just what the Marvin instrument registers under varying height of sun or cloud conditions. *Subject Headings:* **1. Sunshine recorders 2. Instrument comparisons 3. Diffuse radiation 4. Leopoldville, Belgian Congo.**—*M.R.*

3.7–62 551.508.25:621.396.6

Ryle, M., **A new radio interferometer and its application to the observation of weak radiostars.** *Royal Society of London, Proceedings, Ser. A*, 211(1106):351–375, March 6, **1952.** 12 figs., table, 11 refs., 12 equations. **DWB**—A new phase-switching system at Cambridge, England for observing sun and radiostars on wave lengths 1.4 to 8 m is described and records shown. One shows radiation from undisturbed sun and a very small variable component from a minor sunspot. *Subject Heading:* **1. Radio recorders.**—*C.E.P.B.*

3.7–63 551.508.26:551.463

Nanniti, Tosio, **A lazy thermometer.** *Oceanographical Magazine*, Tokyo, 2(2):59–65, June **1950.** fig., 6 tables, 2 refs., 16 equations. **MH-BH**—The lazy thermometer for measuring the mean temperature of sea water consists of an ordinary stem thermometer inserted in the center of a glass bottle filled with wet sawdust. A theoretical discussion of the physical behavior of this type of thermometer is given. *Subject Headings:* **1. Thermometers 2. Sea temperatures.**—*I.L.D.*

SYNOPTIC ANALYSIS AND FORECASTING

(*See also items:* 3.7–34, 3.7–94, 3.7–105, 3.7–107, 3.7–108, 3.7–128)

3.7–64 551.509:551.461.2:06

Dietrich, Günter, **Ebbe und Flut des Weltmeeres.** [Ebb and flow of the oceans.] *Umschau*, Frankfurt a.M., 49(22):677–679, Nov. **1949.** 3 figs., 2 refs. **DLC**—Ebb and flow of tides are analyzed as to their origin, and curves drawn to represent (a) observed water level, (b) lunar tide, (c) solar tide, (d) a computation of the most important 15 tides and (e) varying elements resulting from changing wind and water obstruction. Half-daily variations of tide are represented on a world map. It is pointed out that the German Hydrographic Institute maintains a regular tide warning system based on data of periodic and irregular nature. This service is claimed to be particularly valuable in forecasting swell combined with storm. *Subject Headings:* **1. Storm tides 2. Tide warning services 3. German Hydrographic Institute.**—*G.T.*

3.7–65 551.509(04):621.398

Youle, Clint (*Chicago, Ill.*), **Telecasting the weather.** *Weatherwise*, 5(1):14–15, Feb. **1952.** fig. **DWB**—The author, who broadcasts regularly on television from a Chicago station, relates his personal experiences. He discusses special problems confronting the TV weather broadcaster who must balance scientific accuracy against the comphrehension of the audience and must realize that people in Chicago are interested in unusual conditions in all parts of the country, for various reasons. Most letters received by the author are complimentary. Only 1 out of 100 are harshly critical. *Subject Headings:* **1. Television weather broadcasts 2. Chicago, Illinois.**—*M.R.*

3.7–66 551.509.22(43)

*§Germany. Meteorologisches Amt für Nordwestdeutschland. **Zehntägiger Nordwestdeutscher Witterungsbericht. Band 1**—[A ten-day weather report for Northwest Germany. Vol. 1–.] Hamburg, July **1946**–. charts, graphs, tables. Title varies. Mimeographed. Price: 2.50 D.M. monthly. **DWB**—Starting with July 1946, the Meteorological Service for Northwest Germany has published in various forms decadal summaries of weather and crop conditions for the British Zone of Germany and daily isobaric charts for Europe and the North Atlantic (showing the large scale weather or circulation pattern). In addition to daily temperature, precipitation, cloudiness and wind data for a score of stations, these data are plotted to show the trends during the 10-day period for four main stations, and a detailed discussion is appended. As time went on the tables and charts were extended, and monthly anomaly charts included. Excellent soil and earth temperature charts and phenological charts appear from time to time. *Subject Headings:* **Agricultural climatology 2. Weather and crop bulletins 3. Soil temperatures 4. Phenology 5. Climatic data 6. Northwest Germany.**—*M.R.*

3.7–67 551.509.3:551.582(02)(94)

Ashton, H. T. and Maher, J. V. (*Australia, Met. Br.*), **Australian forecasting and climate.** Fairfield, Victoria, **1951.** 71 p. charts, diagrs., photos. **DLC** A nontechnical guide to weather observations, general meteorology, synoptic analysis and forecasting with particular reference to Australia, and fundamentals of the climatology of Australia. The treatment is up to date and standard for such works, but the many illustrations, climatic charts, selected data for different elements of weather or climate, etc., for the Australian area provide a fresh perspective of meteorology for those in the Northern Hemisphere. The synoptic and climatic conditions are tied in with the general circulation of the earth and oceans, latitude, altitude, continentality, etc. Extremes of temperature, rainfall, etc. are given for various sections of Australia. Typical synoptic charts are also included. *Subject Headings:* **1. Synoptic meteorology 2. Climate of Australia 3. Textbooks 4. Weather forecasting 5. Australia.**—*M.R.*

3.7–68 551.509.3:517.512.2

Coutagne, Aimé (*French National Committee of Geodesy and Geophysics*), **Périodicitiés et prévisions.** [Periodicity and forecasts.] *La Houille Blanche*, Grenoble, 6(4):464–474, July/Aug. **1951.** 7 graphs. In French, English summary p. 462. **DLC**—After giving a

review of statements on periodicity made by ÅNGSTRÖM, BRAZIER, DEDEBANT, K. STUMPFF and WALKER, author quotes some examples of complete failure to predict weather on the basis of periodicity. He then examines various aspects of annual and diurnal variation and of regular fluctuation caused by sunspots and discusses data on temperature, precipitation, runoff and growth of trees presented in tables and graphs in conjunction with sources of periodicity. In reply to the question whether there exists a periodicity other than annual, diurnal or caused by sunspots, author concludes that only average values can be obtained through statistical methods at present, without the possibility of accounting in advance for all kinds of deviations. *Subject Headings:* **1. Periodicities 2. Weather forecasting.**—*G.T.*

3.7–69 551.509.3:551.558

§Das, P. K. (*Met. Off., Poona*), **On the use of convergence charts over the Indian Region.** *Indian Journal of Meteorology and Geophysics*, 2(3):172–179, July **1951.** 5 figs., 3 tables, 9 refs., equations. **MH-BH**—The wind component method is used to delineate areas of convergence or divergence on weather charts. The basis for the calculation is the integrated equation of continuity. The convergence of meridians is neglected and the influence of errors in wind speed is calculated. Nine synoptic situations are examined. Theoretical considerations for computing the rate of precipitation using vertical velocities are given. *Subject Headings:* **1. Convergence charts 2. Synoptic meteorology 3. India.**—*A.A.*

3.7–70 551.509.3:04

A series of local forecast studies. *Canada, Meteorological Div., Cir.*—1899, Feb. 16, **1951.** 3 p. **MH-BH**—Describes plan for a series of local forecast studies with list of those so far issued. *Subject Headings*: **Forecasting techniques 2. Local forecasting 3. Canada.**—*C.E.P.B.*

3.7–71 551.509.3:551.579

Spreen, William C. and Manos, Nicholas E., **Probabilities from limited weather data.** *American Geophysical Union, Transactions*, 33(1):21–26, Feb. **1952.** 3 figs., 3 tables, 7 refs. **DWB**—The application of some mathematical statistical methods to four problems is shown: 1) calculation of number of days with rain for missing observations, 2) frequency of occurrence of contact flying weather, 3) frequency of equivalent head winds of flight and 4) runoff forecasting. *Subject Headings:* **1. Probabilities 2. Statistical techniques 3. Runoff forecasting.** —*A.A.*

3.7–72 551.509.312

Bushby, F. H., **Forecasting methods based on barotropic wave theory.** *Meteorological Magazine*, London, 81(955):1–5, Jan. **1952.** 3 equations, 8 refs. **DWB**—Summarizes CHARNEY's method of forecasting changes in height of 500 mb contour. Tests of his 1- and 2-dimensional methods at Dunstable show significant success but less than conventional methods. Some suggestions are made. *Subject Heading:* **1. Mathematical forecasting.**—*C.E.P.B.*

3.7–73 551.509.312 551.515.11

Flohn, Hermann (*Bad Kissingen*), **Divergenztheorie-Zyklogenese-Antizyklogenese. Synopt.-Statist. Untersuchung Nr. 10.** [Divergence theory-cyclogenesis-anticyclogenesis. Synopt.-statist. investigation No. 10.] *Meteorologische Rundschau*, 5(1–2):8–12, Jan.–Feb. **1952.** 5 figs., 23 refs. German and English summaries p. 8. **MH-BH** -The RYD-SCHERHAG divergence theory of cyclones is derived from PHILIPP's equation of the ageostrophic wind component and applied to the region of convergence in the rear of a frontal zone. In the delta of the upper jet this gives a slight deepening of the mother cyclone and anticyclogenesis in the warm sector. In the entrance region these are reversed. It also leads to wave formation at the fronts. Author then makes a synthesis of recent cyclone theories. The results are tested by a statistical comparison of distribution of pressure changes with heights of 500 mb surface, and incorporated in synoptic rules. *Subject Heading:* **1. Cyclone dynamics.**—*C.E.P.B.*

3.7–74 551.509.33

Loeser, Günter, **94% Treffer in der langfristigen Witterungsvorhersage.** [94% accuracy in long range weather forecasting.] *Umschau*, Frankfort a.M., 50(8):231–243, April **1950**, 3 refs. **DLC**—Monthly and seasonal weather forecast for Germany issued by F. Baur between April 1948 and November 1949 are presented in tabular form and found to have proved accurate in 94% of the cases. Basic principles followed in preparing the forecasts are outlined. Similar forecasts have been published for 27 years in *Umschau*. *Subject Headings:* **1. Long range forecasting 2. Forecast verification. I. Baur, Franz.**—*G.T.*

3.7–75 551.509.33:551.509.8

Sanson, J. (*Paris*), **Une méthode un peu simpliste de prévision du temps à longue échéance.** [A simple method of long range forecasting.] *La Météorologie*, 4th Ser., No. 22:139–141, April–June **1951**. 2 figs. French, English and Spanish summaries p. 139. **DWB**—In order to test the validity of a simple forecast rule which was recently published at Vienna (Beaumont, Éditions du Donjon), namely, that the weather on Dec. 26 was an index of the coming Jan., Dec. 27 of Feb., Jan. 5 for Nov. and Jan. 6 for Dec., the author tabulated departures from normal temperature for these days against departures for the months to be forecast (same for precipitation and sunshine duration) for Tours and Montpellier for five years and found no useful correlation. *Subject Headings:* **1. Weather lore 2. Long range forecasting 3. France.**—*M.R.*

3.7–76 551.509.58:551.579.4

Nezhikhovskiĭ, R. A., **O kratkosrochnykh prognozakh urovneĭ na mnogopritochnom uchastke.** [On short range forecasting of the levels in multi-tributary regions.] *Meteorologiia i Gidrologiia*, No. 2:55–56, Oct. **1950**. 2 figs., 3 refs., equations. **DLC**—Discussion and illustration of the statistical method. The author recommends the methods of G. P. Kalinin, B. V. Poliakov or D. L. Sokolovskiĭ for computing the runoff curve. *Subject Headings:* **1. Runoff forecasting 2. Statistical techniques.**—*N.T.Z.*

STRUCTURE AND PHYSICS OF THE ATMOSPHERE

STRUCTURE OF THE ATMOSPHERE

(*See also items:* 3.7–2, 3.7–15, 3.7–52, 3.7–202)

3.7–77 551.510

Gerson, N. C., **The terrestrial atmosphere.** *Science Progress*, London, 40(158):245–254, April **1952**. fig., 7 tables. **DWB**—The atmosphere is divided into troposphere, stratosphere, chemosphere, ionosphere, mesosphere and exosphere by surfaces (in lat. 45°) at 11, 32, 80 and 400 km. Text and tables summarize composition and photochemistry, temperature, pressure, density and free path at different levels, height and electron density of ionic layers D–G. Brief accounts are given of aurora, night and twilight airglow, and dynamics of ionosphere and mesosphere. *Subject Headings:* **1. Light of the night sky 2. Atmospheric structure 3. Auroras 4. Ionosphere.**—*C.E.P.B.*

3.7–78 551.510.41:551.551

Busse, V. W., **Ozonmessungen im Südschwarzwald.** [Ozone measurements in the Black Forest.] *Baden, Landeswetterdienst, Jahresbericht mit Abhandlungen*, **1949**. p. 23–24. table, 3 refs. **DWB**—The ozone content of the atmosphere was measured by the method of A. Ehmert and the relationship between atmospheric ozone content and weather processes was investigated. In general, highs are associated with high ozone concentration. Ozone increases before and after thunderstorms. No relationship could be found between atmospheric ozone concentration and types of air masses. The daily march of ozone concentration during the summer months and its relation to atmospheric turbulence are discussed. *Subject Headings:* **1. Atmospheric composition 2. Ozone measurement 3. Turbulence 4. Black Forest, Germany.**—*I.L.D.*

3.7–79 551.510.41

Deevey, Edward S., Jr. (*Geochronometric Lab., Yale Univ.*), **Radiocarbon dating.** *Scientific American*, 186(2):24–28, Feb. 1952. photos, diagrs. **DWB**—Author explains the method of geological dating through C_{14}, which is continuously produced in the upper atmosphere under cosmic radiation and which, as a constituent of CO_2, is absorbed by plants and animals. From the amount of disintegration of C_{14} atoms in fossils and other prehistoric findings the age of such specimens is calculated. The methods and apparatus used in such research are shown in photos and results compared with conclusions drawn from investigation using different methods. *Subject Headings:* **1. Geochronology 2. Radiocarbon dating 3. Carbon dioxide.** *G.T.*

3.7–80 551.510.41

Goldberg, Leo (*McMath-Hulbert Obs., Univ. of Michigan*), **The abundance and vertical distribution of methane in the earth's atmosphere.** *Astrophysical Journal*, Chicago, 113(3): 567–582, May 1951. 9 figs., 4 tables, refs., 52 equations. **DWB**—Methane has been found in the atmosphere at Columbus, Ohio, at Lake Angelus, Mich., at Mount Wilson, Calif., at Flagstaff, Ariz., at Baltimore, Md. and on the Jungfraujoch, Switzerland in the last ten years by observations of the infrared spectrum of the sun. The total amount on one of the days when it was observed at McMath-Hulburt Observatory was found to be equal to a layer 1.2 cm thick under normal conditions of temperature and pressure. The present paper deals with cooperative observations made since May 1949 at Mount Wilson (1742 m) and Lake Angelus (296 m), especially with the analysis of intensities of 0–1, 5–6 and 10–11 lines of the positive branch of the $2\nu_2$ band of CH_4, in order to determine the amount and vertical distribution of methane. The theoretical derivation for the equivalent widths of telluric absorption lines formed in a nonhomogeneous atmosphere is given, and the observed curves of growth for the various lines from data obtained at the two levels are presented graphically. It was found that the abundance of CH_4 over Lake Angelus was equivalent to a layer 1.25 cm thick at atmospheric pressure and 288°K. It is concluded that the gas is evenly distributed around the earth and the density decreases exponentially with height at the same rate as the atmosphere itself does. *Subject Headings:* **1. Atmospheric composition 2. Methane. I. McMath-Hulburt Observatory.**—*M.R.*

3.7–81 551.510.41:551.510.534

Regener, Victor H. and Bowen, I. Gerald, **Investigation in the physics of atmospheric ozone.** New Mexico. University. Dept. of Physics, Contract W28-099-ac-379, Report No. 12 (final), Nov. 30, 1950. 33 p. 4 figs., 15 refs. **DWB**—First, the vertical distribution of ozone in the atmosphere is investigated by means of quartz spectrographs attached to sounding balloons which reach heights of 30 to 32 km. Total thickness of the ozone layer on four ascents is 0.33, 0.40, 0.40 and 0.38 cm. No immediate relationship between wind velocity and ozone thickness seen. Secondly, in the automatic and chemical determination of atmospheric ozone a known quantity of sodium thiosulfate is added beforehand to several liters of potassium iodide "change" solution. Air containing ozone is brought into close contact with a small amount of the charge. The equipment for carrying out the measurement of ozone content is described by means of diagrams and the procedure is outlined in detail. The experimental sources of error are discussed. *Subject Headings:* **1. Ozone 2. Ozone layer 3. Atmospheric composition. I. New Mexico. University. Dept. of Physics II. Contract W-28-099-AC-379.**—*I.L.D.*

3.7–82 551.510.42:636:599.9

Largent, Edward J., **Effects of fluorides on man and animals.** *National Pollution Symposium, Proceedings*, Nov. 10–11, 1949. p. 129–134, 2 figs., 7 tables, 13 refs. **DWB**—Air contaminated with fluoride from a factory processing rock phosphate produced chronic fluorosis in a herd of cows. Data on the fluoride content of urine, milk, blood and feces and of the individual body tissues of some of the animals are given. The effect of various concentration of hydrofluoric acid in the atmosphere upon man and the acute and chronic responses of

man to hydrofluoric acid gas contaminants are described. *Subject Headings:* **1. Atmospheric pollution 2. Fluoride 3. Man 4. Animals.**—*I.L.D.*

3.7–83 551.510.42:551.551

Lowry, Philip H., **The theoretical ground-level dose-rate from the radioargon emitted by the Brookhaven Reactor stack.** Upton, N. Y., Brookhaven National Laboratory, July 1950. 33 p. 24 figs., 9 tables, 15 refs., 28 equations. **DWB**—By means of theoretical and empirical data on weather (wind, turbulence, etc.) and oil fog concentration measurements, tables and templates were compiled and are presented for calculating the mean hourly ground-level concentration of A^{41} during various meteorological conditions for distances up to 15 km from the stack. The factors considered are rate of emission, exit velocity from stack, height and diameter of stack, mean wind speed and direction, type of gustiness and mean hourly direction distribution. The instantaneous maximum concentration as a function of distance is also mentioned. Results applicable to any similar installation in flat terrain, regardless of height of stack. *Subject Headings:* **1. Turbulent diffusion 2. Atmospheric pollution 3. Radioargon concentration 4. Industrial hygiene 5. Brookhaven, New York.**—*M.R.*

3.7–84 551.510.5

Gentilli, J., **On the stratification of the atmosphere.** *American Meteorological Society, Bulletin*, 32(10):391–392, Dec. 1951. **MH-BH**—The author criticizes as ambiguous and unsatisfactory both scientifically and linguistically the names for the subdivisions of the atmosphere proposed by FLOHN and PENNDORF and by CHAPMAN and GERSON. *Subject Headings:* **1. Stratification of the atmosphere 2. Atmospheric structure 3. Terminology.**—*I.L.D.*

3.7–85 551.510.5

Upper atmosphere. *Aero Digest*, New York, 63(4):80–105, Oct. 1951. figs., photos, 19 refs. **DWB, DLC**—Results of recent research on properties of the atmosphere and various approaches to the problem of determining its limits are summed up in a popular manner. Equipment, actual and proposed, for upper atmospheric research is discussed. The structure of the atmosphere is shown in a schematic drawing. Photos of a "Lark" missile are presented. *Subject Heading:* **1. Upper atmosphere research.**—*G.T.*

3.7–86 551.510.52/3:551.501.45:519.21

Carruthers, Nellie, **Probability paper—an application in upper-air climatology.** *Great Britain. Meteorological Research Committee, M.R.P.* 711, SCIII/124, 26th Jan. 1952. 8 p. 11 figs., 5 tables, 2 equations, 6 refs. Mimeographed. **DWB**—The use of probability paper for examining frequency distributions is described. The results of combining two normal distributions differing in mean or standard deviation, and of plotting platykurtic and leptokurtic distributions are illustrated. The method is then applied to tropopause pressures at Habbaniya (Iraq), giving (except in July) combinations of two distributions. From discontinuities in upper air temperatures it appears that the total frequency distribution of tropopause pressures is made up of 10 normal distributions. *Subject Headings:* **1. Tropopause height 2. Probability paper 3. Habbaniya, Iraq.**—*C.E.P.B.*

3.7–87 551.510.52/3:551.557:551.513.2

Frost, R., **The upper air circulation in low latitudes and its relation to certain climatological discontinuities.** *Great Britain. Meteorological Research Committee, M.R.P.* 706, S.C. III/122, 28th Jan. 1952. 10 p. 13 figs., 6 tables, 18 refs., 8 equations. Mimeographed. **DWB**—Author discusses the abrupt changes of tropopause in Iraq in late May and October, and corresponding discontinuities in surface temperature. Sections of temperature and E–W component in 40°E, 0–60°N, up to 130 mb in Jan., April, July, Oct. show a westerly jet in 26°N (Jan.) to 40° (July), crossing Iraq at time of tropopause change, and an easterly jet in July in 15°N, 100 mb. Causes of the jet streams and relations to surface conditions and sudden onset of Indian monsoon are discussed. *Subject Headings:* **1. Dynamic climatology 2. Jet stream 3. Tropopause height 4. Iraq.**—*C.E.P.B.*

MECHANICS AND THERMODYNAMICS OF THE ATMOSPHERE

(*See also items:* 3.7–1, 3.7–4, 3.7–6 to 3.7–8, 3.7–95)

3.7–88 551.511

Azpiroz Voldi, Miguel, **Sobre flujo horizontal en la atmósfera.** [On horizontal motion in the atmosphere.] *Revista de Geofísica*, Madrid, 10(39):208–213, July–Sept. **1951.** equations. In Spanish, English summary p. 208. **DWB**—The wind speed is calculated as a function of the Coriolis force at the center of the depression, the pressure gradient, the curvature, density and coordinates according to McVittie's (1949) formula. This formula is applied to the case of an isobaric channel, without convergence or divergence, to determine the equation for wind motion in such a field. *Subject Headings:* **1. Gradient winds 2. Mechanics of the atmosphere 3. Horizontal motion.**—*M.R.*

3.7–89 551.511:551.551

†Liepmann, H. W., Laufer, J. and Liepmann, Kate, **On the spectrum of isotropic turbulence.** *U. S. NACA, Technical Note* 2473, Nov. **1951.** 61 p. 28 figs., tables, 26 refs. **DWB**—An experimental investigation of: 1) the correlation function and spectrum at large Reynolds numbers, 2) the decay, microscale and spectrum at low and intermediate Reynolds numbers, and 3) the zeros of the fluctuating velocity components and their relation to the spectrum and moments of the spectrum. At large Re the range of frequencies of spectrum is near to $n^{-5/3}$, and at small Re, $A/B = n^2$. At $\chi/M = 1000$ the spectrum approaches a Gaussian distribution. *Subject Headings:* **1. Turbulence spectrum 2. Isotropic turbulence.**—*M.R.*

3.7–90 551.511:551.558.1:551.515.11

Stümke, H., **Zustandsänderungen durch grossräumige Wärmezufuhr im Innern einer aufänglich ruhenden Atmosphäre.** [Changes of state by large scale heat import in the interior of an initially still atmosphere.] *Meteorologische Rundschau*, 5(1–2):1–7, Jan.–Feb. **1952.** 9 figs., 5 refs., 32 equations. **MH-BH**—Given an initially still, frictionless, isothermal atmosphere in mid-latitudes on a rotating earth, a finite volume of which is warmed: a) by condensation (steady supply) or b) by convection (irregular supply), vertical motions occur which cause a change of state of surrounding air. The differential equations are set out. Certain simple cases are solved numerically and the results shown in diagrams. The development of a cyclone by large scale heat supply is demonstrated. *Subject Headings:* **1. Thermodynamics of the atmosphere 2. Convection 3. Cyclogenesis.**—*C.E.P.B.*

3.7–91 551.511:551.558.29:551.524

Takeuchi, M., **Notes on the influence of motion on the temperature lapse rate and on the stability of dry and moist air.** *Papers in Meteorology and Geophysics*, Tokyo, 2(1):58–64, March **1951.** 4 figs., 6 refs., equations. **DWB**—Margules' equation for the influence of vertical air motion upon the temperature lapse rate is generalized, so as to be "applicable" to motion in general with sufficient approximation, for a nearly horizontal state of isentropic surfaces in large scale motion. An equation similar to that of Margules' is derived for stability change resulting from moist adiabatic change. Some applications of Charney's equation to large scale horizontal motion and to local vertical motion are discussed. *Subject Headings:* **1. Vertical temperature gradient 2. Lapse rate stability 3. Vertical motion.**—*I.L.D.*

GENERAL CIRCULATION

3.7–92 551.513:523.03

Conference on planetary atmospheres at Lowell Observatory, Flagstaff, Arizona, March 17–20, 1950. (In: Flagstaff, Arizona, Lowell Observatory, **The project for the study of planetary atmospheres.** Contract AF 19(122)-162, Annual Report, Sept. **1950.** p. 79–93. diagrs. Mimeographed.) **DWB**—The summaries of topics discussed are presented. These were: water vapor on Mars, photographic and visual facts of observation for Mars, radiometry on Mars, photographic and visual facts of observation for Jupiter, methane and ammonia on Jupiter, the equatorial "acceleration" of Jupiter, composition and behavior of atmosphere of Venus and solar variations. *Subject Headings:* **1. Planetary atmospheres 2. Atmospheric**

circulation 3. Astrophysics. I. Flagstaff, Arizona. Lowell Observatory II. Contract AF 19(122)-162.—*I.L.D.*

3.7–93 551.513

Petterssen, Sverre, **The general circulation of the lower atmosphere.** *New York Academy of Science, Transactions, Ser. II*, 14(2):113–119, Dec. **1951.** 6 figs., ref., 6 equations. **DWB**—Author explains the circulation in polar regions, over different parts of continents and ocean, in the trade wind belt, in the Mid-latitude belt, and effects of mountain barriers by means of vorticity transfer between heat and cold sources. Frequency maps of cyclones and anticyclones of the Northern Hemisphere (1899–1939) are given. *Subject Headings:* **1. General circulation 2. Vorticity 3. Cyclones 4. Anticyclones 5. Northern Hemisphere.**—*A.A.*

3.7–94 551.513.1:551.509.33

Baur, Franz (*Bad Homburg, Germany*), **The significance of anomalies of atmospheric circulation over the North Atlantic in November with regard to the temperatures of the following winters in New England.** *American Meteorological Society, Bulletin*, 32(9):319–325, Nov. **1951.** fig., 4 tables, 9 refs. Translated from German by Mrs. Victor Conrad. **DWB**—On the basis of the distribution of air pressure at a level of 5 km, the atmospheric circulation in the temperate zone of the Northern Hemisphere is divided into seven types of circulation regions characterized by different types of persistence and recurrence. A connection is established between the intensity of the zonal circulation over the North Atlantic in Nov. and the temperature of New England in the following winter. Rules are formulated for predicting the winter temperature in eastern United States from the November circulation pattern. The author claims that his rules, which are applicable to conditions occurring $\frac{1}{3}$ of the time, were verified 100% during the last 70 winters, thus enabling forecasts to be made with certainty whenever the prescribed conditions occur. He doesn't say what to do the other $\frac{2}{3}$ of the time. *Subject Headings:* **1. Long range forecasting. 2. Atmospheric circulation anomalies 3. Temperature forecasting 4. New England 5. North Atlantic Ocean. I. Conrad, Mrs. Victor (*trans.*).**—*I.L.D.*

3.7–95 551.513.1:551.511

Gambo, K., **Notes on the energy dispersion in the atmosphere.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 29(7):215–232, July **1951.** 19 figs., 5 refs., numerous equations. **DWB**—Continuing the work of Rossby (1945, 1949) and Yeh (1949), the author investigates the formation of a new trough over North America following intense cyclogenesis in the Gulf of Alaska. He considers the blocking action as the initial problem and the formation of the trough as a boundary value problem. The problem of dispersion of energy is considered in relation to the group velocity, phase velocity and wave length. Theoretical results of the author are compared graphically with those of Yeh. *Subject Headings:* **1. Energy dispersion 2. Blocking action 3. General circulation. I. Yeh, Tu-cheng II. Rossby, Carl-Gustav.**—*M.R.*

3.7–96 551.513.1:551.515.127(7)

Haltiner, G. J., **Upper-level vortices and the turbulent transfer of momentum.** *Journal of Meteorology*, 8(3):202–204, June **1951.** fig., 4 refs., equations. Reply by Yi-Ping Hsieh, p. 204–205. **DWB**—Author criticizes Y.-P. Hsieh's paper, "An investigation of a selected cold vortex over North America," *Journal of Meteorology* 6:401–410, 1949. *Subject Headings:* **1. Turbulent transfer of momentum 2. Upper level vortexes 3. Momentum transfer. I. Hsieh, Yi-Ping.**—*I.L.D.*

3.7–97 551.513.2:551.583.15(73/9)

Ludlum, David M. (*Philadelphia, Pa.*), **December, 1951, brings winter and summer.** *Weatherwise*, 5(1):18–20, Feb. **1952.** 3 figs. **DWB**—Unusual features of weather in the U. S. in Dec. 1951 described and charts presented illustrating anomalies of temperature, precipitation and depth and area covered by snow on Christmas. Three storms in one week gave San Francisco 4.57 inch of rain, caused local floods and the closing of the Golden Gate Bridge for 3 hrs during 60 mi gusts. The week ending Dec. 4 was 18°F above normal at Devil's Lake

N. D. and ±18°F at Washington, D. C. and Richmond, Va. the following week, at the same time that Ely, Nev. was 18°F below normal. At Watertown, N. Y. 86 in. of snow fell—heaviest since 1900. The last week in Dec. was also very cold in the Rockies, warm in the east and rainy in San Francisco. *Subject Headings:* **1. Abnormal winters 2. Climatic anomalies 3. United States.**—*M.R.*

3.7–98 551.513.2:551.589.1

Pagava, S. T., **A természetes szinoptikai szakaszok határainak megállapítása.** [Determination of natural synoptic periods.] *Időjárás*, 54(12–1):9–15, Jan.–Feb. **1950.** ref. Trans. from Russian, *Meteorologia i Gidrologia*, July 1948. **DWB** —Author comments on suggestions made by Russian scientists on the determination of a natural synoptic period and its delimitation in time and space and derives his own definition from the pressure pattern characterizing the surface and upper air synoptic situation. *Subject Headings:* **1. Synoptic periods 2. Pressure patterns 3. Synoptic climatology.**—*G.T.*

3.7–99 551.513.2(4)

van der Ham, C. J. and Kuipers, W. J. A., **Boven West-Europa ombuigende westcirculatie "Winkelwestlage."** [A case of westerly type "Winkelwestlage" extending over western Europe.] *Hemel en Dampkring*, 49(10):173–174, **1951.** 2 figs. **DLC** Case history of situation on Aug. 19–23, 1951 over northwest Europe, illustrated by mean surface and 500 mb chart for period. *Subject Headings:* **1. Synoptic types 2. Westerly circulation 3. Northwest Europe. I. Baur, Franz.**—*M.R.*

ATMOSPHERIC DISTURBANCES

(See also items: 3.7–4, 3.7–73, 3.7–90, 3.7–96, 3.7–134)

3.7–100 551.515:523.4:535.214:016

Bibliography of spectroscopy and radiometry of planetary atmospheres (and related subjects) 1920 to 1950. (In: Flagstaff, Arizona. Lowell Observatory, **The project for the study of planetary atmospheres.** Contract AF 19(122)-162 Annual Report, Sept. 1950, p. 67–70. Mimeographed.) **DWB**—1) General references on planetary atmospheres —methods of investigation and characteristics of spectra and 2) specific references on the planetary atmospheres of Venus, Mars and the other major planets. *Subject Headings:* **1. Spectroscopy 2. Radiometry 3. Planetary atmospheres 4. Bibliographies. I. Flagstaff, Arizona. Lowell Observatory II. Contract AF 19(122)-162.**—*I.L.D.*

3.7–101 551.515:551.581 551.553.2

§Palmer, C. E., **Reviews of modern meteorology—5. Tropical meteorology.** *Royal Meteorological Society, Quarterly Journal*, 78(336):126–164, April **1952.** 26 figs., 4 tables, 48 refs., 4 equations. **DWB** This study is based mainly on detailed observations in the Central Pacific in 1946, 1948 and 1951. It opens with a 3-dimensional study of a wave in an easterly equatorial current April 28–30, 1951, showing a vortex about 2°N., 156°E. An idealized model is built up from this, showing "equatorial front," areas of convergence and divergence, field of motion, etc., in accord with the climatological concept of trades and antitrades and J. BJERKNES' cellular circulation. The transformation of an unstable equatorial wave into a vortex is examined mathematically, and the development into a tropical cyclone described, with a reference to kona storms. The working hypotheses of the perturbation school of tropical meteorology are summarized, and applied to the development of hurricanes in N. Atlantic and their absence in S. Atlantic (example Oct. 1–2, 1949), and briefly to monsoons over the continents. *Subject Headings:* **1. Tropical meteorology 2. Easterly waves 3. Kona storms.**—*C.E.P.B.*

3.7–102 551.515.1:551.553.21(54)

§Desai, B. N. and Koteswaram, P., **Air masses and fronts in the monsoon depressions in India.** *Indian Journal of Meteorology and Geophysics*, 2(4):250–265, Oct. **1951.** 6 figs., 8 refs. **MH-BH**—An historical study of a depression in the Bay of Bengal in June–July 1945.

Monsoonal depressions generally move along the axis of the seasonal trough at the surface. A depression in the Bay of Bengal can be formed at the southeastern end of the seasonal trough of low pressure. Essential condition for its formation is the extension northwards of the cold monsoon air from the Southern Hemisphere and its deflection under orographic influence depending on the seasonal trough of low pressure. Time-altitude cross sections, showing different air masses are given. The differences between the Arabian Sea monsoon and the monsoon in the Bay of Bengal are discussed. *Subject Headings:* **1. Depressions 2. Air masses 3. Monsoons 4. Bay of Bengal, India.**—*A.A.*

3.7–103 551.515.1

§Rodewald, Martin, **Die Nordseestürme vom 10. and 13. Aug. 1951.** [The North Sea storms of Aug. 10 and 13, 1951.] *Wetterlotse*, Hamburg, No. 28/29:7–15, Oct. **1951.** 2 figs. **DWB**—These twin storms caused many accidents and loss of life. The barometer gave no warning of the first, rising by 1 mb while wind rose from force 1 to 8. The peculiar structure of the storm is shown schematically and the frontal system discussed. Radiosondes showed air 3½°C warmer over Norway than over Holland. The gale warnings issued are summarized. *Subject Headings:* **1. Cyclonic storms 2. North Sea.**—*C.E.P.B.*

3.7–104 551.515.13

§Rodewald, Martin, **Der Schwere Doppelsturm bei den Azoren vom 4–9 November 1951.** [The severe double storm near the Azores.] *Wetterlotse*, Hamburg, No. 36:17–21, Feb. **1952.** 2 figs. **DWB**—On Nov. 3 there was a warm high W. of the Azores, a cold high near Belle Isle Strait and a low S. of Iceland with a cold air current in its rear. E. of the neutral point in 45°N, 45°W a rapid pressure fall set in and the depression moved SSE. *Subject Headings:* **1. Cyclonic storms 2. Azores.**—*C.E.P.B.*

3.7–105 551.515.2:551.509.3(213)

†Guilmet, B., **Note sur la météorologie tropicale. Introduction au bulletin d'études du service météorologique du groupe Antilles-Guyane.** [Note on tropical meteorology. Pt. 2. Introduction to the bulletin of the meteorological service of the Antilles-Guiana group.] *La Météorologie*, 4th Ser., No. 22:77–97, April–June **1951.** 16+figs., biblio. p. 96–97. French, German and Spanish summaries p. 77. **DWB**—A thorough review of the principles of analysis and forecasting of hurricanes in the West Indies, and a less extensive discussion of shear lines, surge lines, easterly waves and polar air masses in the trade wind belt of the Western Atlantic and Caribbean. Cross sections and panoramic (schematic) diagrams of the structure of the hurricanes of July 11–19, 1946, Sept. 1946 and June 1947 are presented. Type charts are presented showing six possible synoptic situations and accompanying winds, weather and developments. *Subject Headings:* **1. Tropical meteorology 2. Hurricane analysis 3. Hurricane forecasting 4. Caribbean Area.**—*M.R.*

3.7–106 551.515.2

James, R. W. (*Edinburgh, Scotland*), **A note on the vertical structure of a typhoon.** *Monthly Weather Review*, 79(11):205–207, Nov. **1951.** 2 figs., 9 refs., equation. **DWB**—Author compares vertical structure of typhoon "Kitty" as determined at Tokyo with structure of a hurricane over Tampa, Fla. on Oct. 19, 1944 and finds two characteristic decay rates in both instances, which leads him to conclude that a general pattern for tropical lows exists. It is also found that a similar vertical structure characterizes mature extratropical disturbances. *Subject Headings:* **1. Typhoon structure 2. Typhoon "Kitty" 3. Hurricanes 4. Florida 5. Japan.**—*G.T.*

3.7–107 551.515.2:551.509.311(729)

U. S. Air Weather Service, **Some aspects of hurricane forecasting.** *U. S. Air Weather Service, Technical Report* 105–76, June 20, **1951.** 31 p. diagr. **DWB**—Based on experience obtained by the Air Force Hurricane Office during 1947 through 1950, an attempt is made to formulate systematically the present knowledge of origin, intensification, movement and rules for forecasting hurricanes, especially in the West Indies and Caribbean. Rules for determining the point of recurvature and the steering of hurricanes are given special emphasis

Analysis and forecast procedures are also stated logically, and an appendix which takes up the relation of storm waves to hurricanes in the Gulf of Mexico is included. *Subject Headings:* **1. Hurricane forecasting 2. Forecasters manuals 3. Forecast aids 4. West Indies 5. Caribbean Sea 6. Gulf of Mexico.**—*M.R.*

3.7–108 551.515.23:551.509.3(759)

§Gentry, Robert C., **Forecasting the formation and movement of the Cedar Keys hurricane, September 1–7, 1950.** *Monthly Weather Review*, 79(6):107–115, June 1951. 11 figs., 2 tables, 8 refs. **DWB**—An analysis of the origin, development, movement and conditions attending the erratic hurricane that remained around the Florida peninsula for several days. Methods of forecasting used, especially the application of the steering concept (winds at 30,000 ft or the top of the storm were used) which proved to be the most successful, are described and illustrated. The fact that the entire life history of the storm could be followed by the network of U. S. or Cuban upper air or radar stations, enabled a close watch to be kept on its loopy trajectory and the changes in its structure. *Subject Headings:* **1. Hurricane forecasting 2. Steering 3. Hurricane tracking 4. Florida.**—*M.R.*

3.7–109 551.515.23(265)

Horn, John D., **On irregular movements of tropical cyclones in the Pacific.** *American Meteorological Society, Bulletin*, 32(9):344–345, Nov. 1951. 2 figs. **MH-BH**—In an attempt to account for apparent irregularities in the movement of typhoons attributed hitherto to inaccuracy in the location of "fixes" of the center of typhoons during flight reconnaissance, author believes that the paths of the typhoons ("Allyn" and "Doris") are actually oscillatory and questions the existence of genuine knowledge on the nature of the movement of typhoons. *Subject Headings:* **1. Typhoon tracks 2. Western Pacific.**—*G.T.*

3.7–110 551.515.33:551.501.83

Jones, Herbert L., **A sferic method of tornado identification and tracking.** *American Meteorological Society, Bulletin*, 32(10):380–385, Dec. 1951. 5 figs. **MH-BH**—The physical basis for the possible use of sferics resulting from tornadoes, for distinguishing them from other types of storms and for tracking them is discussed. The apparatus, which consists of a superheterodyne receiver and a cathode ray oscilloscope for receiving the sferic impulses and a camera, is described, and a circuit diagram is given. The operation of the apparatus, its most suitable location and the results obtained during 1950 and the program for 1951 are discussed. Photographs of oscillograms typical of thunderstorms are given. *Subject Headings:* **1. Tornado tracks 2. Sferics 3. Sferics equipment.**—*I.L.D.*

3.7–111 551.515.43

Feteris, P. J., **Detailed observations of thunderstorms.** *Weather*, 7(2):35–39, Feb. 1952. 3 figs., 8 refs. **DWB**—Describes a local thunderstorm survey in Holland (20 observers over 80 sq. mi.) and details of a thunderstorm on July 3, 1950. Lightning records indicate many charged cells, up to $\frac{3}{4}$ mi. diameter, life 2–15 minutes, moving parallel at same speed. Relations of lightning to precipitation not yet clear. *Subject Headings:* **1. Thunderstorm structure 2. Netherlands.**—*C.E.P.B.*

3.7–112 551.515.8 551.589.5:551.524(41/2) 551.589.5:551.571(41/2)

*Belasco, J. E., **Characteristics of air masses over the British Isles.** *Great Britain. Meteorological Office, Geophysical Memoirs*, 11(87), 1952. 34 p. 7 figs., 17 tables, 20 refs. MO 530b. **DWB**—Over British Isles 21 types of air mass are distinguished, 6 tropical, 5 indeterminate anticyclonic and 10 polar. For most of these (for summer and winter), mean and extreme surface temperatures and means of vapor pressure at Kew, wet bulb potential temperature, thermal stability, thickness 700–1000 mb and 700–500 mb, rate of cooling, precipitable water and mixing ratio are calculated and compared. Changes in air masses during passages over ocean from Azores or Iceland are discussed. Mean monthly frequencies of types 1938–49 are tabulated. This is a summary of a Ph.D. thesis available at University of London Library, Senate House, W.C. 1. *Subject Headings:* **1. Air mass characteristics 2. British Isles.**—*C.E.P.B.*

RADIATION AND TEMPERATURE

RADIATION

(*See also items:* 3.7–9, 3.7–30, 3.7–61)

3.7–113 551.52:536:551.508.

Janiszewski, Feliks, **Temperatura i ciepło.** [Temperature and heat.] *Gazeta Obserwator PIHM*, Warsaw, 4(2):11–13, Feb. **1951. DLC**—A theoretical article in which the autho discusses and explains the distinction between temperature and heat and the methods o measuring and expressing each. *Subject Headings:* **1. Temperature 2. Heat.**—*A.M.P.*

3.7–114 551.521.

Schedler, A., **Die Bestrahlung geneigter Flächen durch die Sonne (nach Strahlungs messungen in Wien).** [The radiation on sloping surfaces by the sun (from radiation measure ments in Vienna).] *Austria. Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch* v.87, Abhang 7:D52–D64, **1950.** figs., tables. **DWB**—The irradiation in gcal/cm²/min/10 of surfaces sloping in various directions and angles is calculated from measurements of sola radiation in Vienna and shown in tables and graphically. *Subject Headings:* **1. Radiatio climate 2. Vienna, Austria.**—*C.E.P.B.*

3.7–115 551.521.11(436

Eder, Hermine, **Lokale Sonnenauf- und -untergangszeiten österreichischer Beobach tungsstationen.** [Local times of sunrise and sunset at Austrian observing stations.] *Austria Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch*, v. 87. Abhang 5:D40–D44, 195(table. **DWB**—In continuation of J. Gutmann, "Die Besonnungszeiten ostalpiner Orte 1939, gives local times of sunrise and sunset on 1, 11 and 21 of each month for 26 Austria stations. *Subject Headings:* **1. Sunshine 2. Austria.**—*C.E.P.B.*

3.7–116 551.521.11:697:551.501.4(94

Phillips, R. D., **Sunshine and shade in Australasia.** *Australia. Commonwealth Exper mental Building Station, Sydney, Duplicated Document* No. 23, May **1948.** 32 p. photo graphs, diagrs., protractor in pocket. Price, 1 s. **DWB**—Nomograms, tables and a protracto are included for calculating the angles at which the sun's rays will fall on buildings at differer latitudes, seasons and times of day. Detailed explanations are given and charts show com parative mean temperatures for each day of the year at several Australian stations. *Subje Headings:* **1. Solar angles 2. Building design 3. Sunshine data 4. Australia. I. Australia Commonwealth Experimental Building Station.**—*M.R.*

3.7–117 551.521.13 551.590.2

†Millett, M. R. O., **Present state of our knowledge of the relationship of solar radiatio and climate and its importance to agriculture and forestry.** (In: Australian and New Zealan Association for the Advancement of Science, Adelaide Meeting, August, 1946, Section K Agriculture and Forestry, **Symposium on Climatology in relation to agriculture and forestr** [n.d.] 11 p. Mimeographed. 25 refs.) Abstracted from reprint. Summary of literatu on variations of solar constant and on sunspot cycle, and brief discussion of possible terrestri effects. Recommendations for research in Australia. *Subject Headings:* **1. Solar consta 2. Sunspot effects.**—*C.E.P.B.*

3.7–118 551.521.1

Righini, G., **La radiation intégrale du soleil.** [The total radiation from the sun.] *Co mission pour l'Étude des Relations entre les Phénomènes Solaires et Terrestres, Rapport* 7, 195 p. 57–62. 12 refs. equation. **DWB**—Methods of determining solar constant are describe and sources of error discussed. Three European values range from 1.936 to 1.995 cal/cm$_2$/m and author gives most probable value as 1.97. Fluctuations are small and probably of te restrial origin. *Subject Heading:* **1. Solar constant.**—*C.E.P.B.*

3.7–119 551.521

Goody, R. M., **A statistical model for water-vapour absorption.** *Royal Meteorologic Society, Quarterly Journal*, 78(336):165–169, April **1952.** 2 figs., 5 refs., 4 equations. **DWB**

A simplified model of a water vapor absorption band is set up, in which the line intensities and positions are distributed at random. Comparison of transmission data given by an exponential based on this assumption with COWLING's (1950) theoretical computations gives very good agreement and curves are given to show the mean absorption coefficient over a rotation band. *Subject Heading:* **1. Absorption by water vapor.**—*C.E.P.B.*

3.7–120 551.521.3:551.521.64

Loeser, Günter, **Die Atmosphäre als lebensnotwendiges Filter.** [The atmosphere as a vitally necessary filter.] *Umschau*, Frankfurt a.M., 50(1):10–11, Jan. **1950.** fig., 2 refs. **DLC**—The absorption of solar and cosmic radiation by the atmosphere is discussed in popular terms and the formation of atmospheric ozone explained. The importance of the atmosphere in intercepting meteors is pointed out. The structure of the atmosphere and the penetration of cosmic particles and bodies is shown in a schematic drawing. *Subject Headings:* **1. Atmospheric absorption 2. Solar radiation 3. Cosmic radiation 4. Ozone.**—*G.T.*

3.7–121 551.521.4:551.594.51

†Nicolet, M., **Problèmes de l'émission spectrale du ciel nocturne et des aurores.** [Problems of the spectral emission of the night sky and of auroras.] *Commission pour l'Étude des Relations entre les Phénomènes Solaires et Terrestres, Rapport* 7, **1951.** p. 165–182. table, 38 refs. **DWB**—Three symposia in 1947 initiated important progress. Known radiations from the night sky are tabulated but altitudes and temperatures of the emitting layers are mostly uncertain. From night sky and auroral radiations some conclusions are drawn about vertical changes of composition of the atmosphere. Chemical and physical processes are discussed. Twilight observations are based on dissociation of N_2 at very high levels. *Subject Headings:* **1. Night sky spectrum 2. Auroral spectra.**—*C.E.P.B.*

3.7–122 551.521.63

†Link, F., **Rayonnement solaire de courtes longueurs d'onde.** [Short wave solar radiation.] *Commission pour l'Etude des Relations entre les Phénomènes Solaires et Terrestres, Rapport* 7, **1951.** p. 39–55. 59 refs., 8 equations. **DWB**—Summarizes measurements of solar radiation of less than 3000 Å. These include V2 spectrograph records and indirect determinations from effects on ionosphere, planets and comets. Theories of emissions from the quiet and disturbed sun, and of maintenance of high solar temperature are discussed. Author concludes that there is not yet sufficient information. *Subject Heading:* **1. Ultraviolet radiation.**—*C.E.P.B.*

3.7–123 551.521.64:551.547.3:551.524.7

Dolbear, D. W. N. and Elliot, H., **Seasonal and diurnal variations in cosmic ray intensity.** *Journal of Atmospheric and Terrestrial Physics*, 1(4):215–222, **1951.** 2 figs., 6 tables, 8 refs. **DWB**—The seasonal variation in cosmic ray intensity has been measured with two independent Geiger-Müller counter sets shielded with 35 cm of lead. It is shown that the variation is due to atmospheric temperature and pressure changes and can be completely explained only with the aid of DUFÉRIER's positive temperature effect. In addition, it appears that the diurnal variation may partly be accounted for by the same mechanism. *Subject Headings:* **1. Cosmic ray intensity 2. Cosmic ray variations 3. Dupérier's positive temperature effect 4. Atmospheric pressure effects.**—*Authors' abstract.*

TEMPERATURE

(*See also items:* 3.7–35, 3.7–91, 3.7–123, 3.7–149, 3.7–150, 3.7–180, 3.7–181, 3.7–184, 3.7–194, 3.7–196, 3.7–204)

3.7–124 551.524.1:551.525.2:632.187(661)

Pitot, A. and Masson, H., **Quelques données sur la température au cours des feux de brousse aux environs de Dakar.** [Data on the temperature during the burning of grass in the vicinity of Dakar.] *Institut Français d'Afrique Noire, Dakar, Bulletin*, 13(3):711–732, July **1951.** photos., graphs, tables, refs. **DLC**—Five series of observations were made with

electric recording thermometers at 2 cm below the surface, at the surface, and at 1.5 m abov the surface to determine the conditions prevailing during brush or grass fires during stron winds. Curves show that peak temperatures of as high as 560°C occur at 1.5 m within minute of the passage of the fire. *Subject Headings:* **1. Grass fires 2. Temperatures nea fires 3. Dakar, French West Africa.**—*M.R.*

3.7–125 551.524.3:551.585.7(436)(234.3

*Morawetz, Sieghard, **Zur Variabilität des Klimas am Südostrand der Alpen.** [Variabilit of the climate of the southeast margin of the Alps.] *Wetter und Leben*, Vienna, 3(9–10):195 198, Nov. **1951.** tables. **DWB**—Monthly five-year averages of dry bulb temperatures fo the period 1891–1950 for Graz are given and the sequence, frequency and distribution c coldest and warmest months during the period 1864–1950 are analyzed in order to deduc precepts for forecasting the probability of warm and cold months during summer and fal It was found that the coldest five year mean was 1891–1895, that temperature extremes hav been on the increase since 1920, that the period of equable temperature which lasted fro 1902–1928 was longer north than south of the Alps, and that a similar sequence of temperatur for specific months is rarely repeated in successive years. *Subject Headings:* **1. Temperatur variations 2. Climate of the Alps 3. Temperature forecasting 4. Temperature trend 5. Long period record 6. Graz, Austria 7. Austrian Alps.**—*I.L.D.*

3.7–126 551.524.33:551.583.

*Nakamura, Saemon Taro, **Meteorological statistics. (Part II.) Secular change in th air temperature.** *Tohoku University, Science Reports, 5th Ser., Geophysics*, 3(1):13–22, Apr **1951.** 5 figs., 9 tables. **DWB**—An examination of observations made at the Mukuiyam Observatory (1915–1949) is made. Monthly anomalies are given and periodicities sough The temperature increased slightly from 1926. The author calculates a Brückner cycle c 34.6 years. The observation period is too short to draw any conclusions. *Subject Heading* **1. Temperature periodicities 2. Climatic variations 3. Mukuiyama, Japan.**—*A.A.*

3.7–127 551.524.34:551.583.14:551.588.

*Mitchell, John Murray, Jr., **On the causes of instrumentally observed secular tem perature trends.** Thesis [*B.S.*]—Massachusetts Institute of Technology, Jan. **1951.** 145 p 22 figs., 14 tables, 45 refs. **DWB**—Details of a study by WILLETT on world-wide temperatur trends, including charts showing these trends over the last 100 years, and the anomalies i various parts of the earth for the periods 1880–1900, 1900–1920 and 1920–1940 are presente in the introduction. The decided upswing during the last period, in both the Arctic regio and in the average for the whole earth, is noteworthy. The main part of the thesis attempt to show the factors which might control or affect the records of temperature from cities towns (such as growth or industrial development, instrumental errors, etc.). The apparen changes are segregated from real changes in an elaborate outline chart, and each factor discusse or treated. *Subject Headings:* **1. Temperature trends 2. Climatic variations 3. Enviro mental influences.**—*M.R.*

3.7–128 551.524.34:551.526.6:551.509.33(261)(26

Schell, Irving I., **On some temperature trends in Iceland, Northern Europe, and nort eastern U. S. A. associated with prolonged periods of severe and light ice off Iceland.** Woo Hole Oceanographic Institution, Contract N6our-27705, Technical Report, Nov. **1950.** 43 tables, chart, biblio. **DWB**—Annual mean temperatures have been smoothed by obtainin 10-year averages, and these data for 11 decades (1831–1940) and one incomplete deca (1941–1949) have been compiled for Archangel, Bergen, Copenhagen, Edinburgh, Helsink Leningrad, Moscow, New Haven, Oslo, Stockholm, Stykkisholm and Vardo. These te peratures have been correlated with ice data for seas around Iceland, Archangel and Var for current, subsequent and previous decades. No relation could be found between ice con tions and temperatures of the previous decade but temperature anomaly in decade subseque to severe ice conditions was generally negative, and after light ice, positive. An attempt made to explain these relations on the basis of currents of the North Atlantic and Arct Effect of cities on temperature records over long periods is discussed in appendix. *Subj*

Headings: **1. Temperature trends 2. Long range forecasting 3. Urban influences 4. Arctic Sea ice 5. North Atlantic Ocean 6. Arctic Ocean. I. Woods Hole Oceanographic Institution II. Contract N6onr-27705.**—*M.R.*

SOIL TEMPERATURE

(*See also items:* 3.7–124)

3.7–129 551.525

*Bullard, E. C. and Niblett, E. R., **Terrestrial heat flow in England.** *Royal Astronomical Society, Monthly Notices, Geophysical Supplement*, 6(4):222–238, Nov. **1951.** 7 figs., 4 tables. **DLC**—The temperature gradients have been measured in six bores in Nottinghamshire and in two in north Yorkshire. The heat flow at some of the Nottinghamshire bores is much larger than is usual. The largest is 2.87×10^{-6} cal/cm² sec. It is shown that this very local anomaly cannot be due to an excess of radioactivity or to igneous activity. An explanation is given depending on the flow of water from west to east over the Eakring anticline. The mean flow at the bores in Nottinghamshire is 2.24×10^{-6}. These results do not confirm the theoretical expectation that low-lying places will have a small heat flow. *Subject Headings:* **1. Temperature gradient 2. England.**—*Authors' abstract.*

3.7–130 551.525

Jung, Karl (*Bergakademie Clausthal*), **Kühlt sich die Erde ab?** [Is the earth cooling off?] *Umschau*, Frankfurt a.M., 51(17):516–517, Sept. **1951. DLC**—The quantity of heat produced in the earth's crust by decomposition of radioactive elements is investigated, the thickness of the layer in which such decomposition occurs is determined and comparative data for the cooling of the earth through conductivity and for radioactive heat production presented in graphs. In computing these data, author finds that the quantity of heat lost exceeds the amount of heat produced and consequently it is correct to assert that the earth is cooling off. *Subject Headings:* **1. Earth temperatures 2. Thermodynamics 3. Cooling of the earth.**—*G.T.*

3.7–131 551.525:577.39

Laudelout, H. and Meyer, J., **Temperature characteristics of the microflora of Central African soils.** *Nature*, London, 168(4279):791, Nov. 3, **1951.** table. **DWB**—A brief table of activation energy calculated from rate of uptake of oxygen at different temperatures in 6 types of soil. *Subject Headings:* **1. Soil temperatures 2. Microorganisms 3. Central Africa.**—*C.E.P.B.*

3.7–132 551.525:536.21

Voloshinova, G. A., **Sravnenie razlichnykh metodov opredeleniia koefitsienta temperaturoprovodnosti.** [Comparison of different methods for determining the coefficient of heat conduction.] *Leningrad. Glavnaia Geofizicheskaia Observatoriia, Trudy*, No. 22(84): 34–37, **1950.** 2 tables, 3 refs., 3 equations. **DLC**—The precision of various formulas for calculating the coefficient of heat conductivity of the soil is examined by applying each formula to the same temperature data. These formulas include the expression of heat conductivity as a simple periodic function (or a Fourier series) and the expression of LAĬKHTMAN and TSEĬTIN. It was found that the formula of TSEĬTIN gives an exact value for the coefficient of heat conduction during the hours when the flow changes direction and that of LAĬKHTMAN for diurnal period when the former is not applicable. *Subject Headings:* **1. Heat conductivity of soil 2. Heat conductivity coefficient 3. Soil temperatures.**—*I.L.D.*

PRESSURE AND WIND

PRESSURE

(*See also item:* 3.7–5, 3.7–123, 3.7–125)

3.7–133 551.547.2:551.501.42

di Benedetto, Felice, **Sulla riduzione della pressione vera al livello del mare.** [On the reduction of true pressure to sea level.] *Rivista di Meteorologia Aeronautica*, Rome, 10(4):30–33, Oct./Dec. **1950.** 2 figs. Italian, French, English and German summaries p. 30. **MH-BH**

—A graph and simple slide rule for reducing station pressure to sea level are presented, and their construction and use described. (The example given is for Rome.) This method is satisfactory for stations <500 m elevation (and for certain stations between 500 and 600 m above sea level). The accuracy of the method is shown by comparing results for a station at 10 m elevation and one at 600 m elevation, and with extreme temperature of −30°C and +40°C—a maximum possible error of 4.3 mb being found under the most extreme conditions. *Subject Headings:* **1. Pressure reduction 2. Nomograms 3. Slide rules 4. Sea level pressures.** *M.R.*

3.7–134 551.542:551.515.12:551.577.3

Hunter, Marvin N., **Katallobaric centers and the subsequent occurrence of precipitation at Washington, D. C.** *American Meteorological Society, Bulletin*, 32(10):363–370, Dec. **1951.** 7 figs., 4 refs. **MH-BH**—An attempt to determine the relationship between the geographical location and the intensity of the 12-hour pressure fall centers in the Northern Hemisphere and the subsequent occurrence of precipitation in Washington, D. C. Seven 12-hour pressure change maps for the winter months, showing the frequency of precipitation in Washington per number of times of pressure drop during the 12 or 24-hour period when the center of pressure fall was located in a different geographical area, have been constructed. The charts show that the probability of precipitation in Washington is highest when the pressure fall is southwest of Washington. Relationship between pressure jumps in eastern and central United States and northeastern Canada, and probability of precipitation in Washington are listed in the form of precepts suitable for use in forecasting. (*Same item* as No. 3E–209 in May 1952 *Meteorological Abstracts.*) *Subject Headings:* **1. Precipitation frequencies 2. Katallobaric centers 3. Objective forecasting 4. Washington, D. C.**—*I. L. D.*

WIND

(*See also items:* 3.7–3, 3.7–5, 3.7–7, 3.7–11, 3.7–69, 3.7–71, 3.7–87, 3.7–89, 3.7–90, 3.7–91, 3.7–113, 3.7–150, 3.7–151, 3.7–153, 3.7–172, 3.7–173, 3.7–182)

3.7–135 551.5

*Pleiss, H. (*Leipzig Univ.*), **Die Windverhältnisse in Sachsen.** [Wind conditions in Saxony.] *Germany. Deutsche Demokratische Republik, Meteorologisher Dienst, Abhandlungen* No. 6, **1951.** 127 p. 29 tables, 22 charts and graphs, 22 refs. Price 27 D.M. **DWB** Comprehensive study of wind conditions in Saxony based on detailed observations, 1925 1944 with extensive data and graphs included. The topics covered are: selection of observation and stations, description of instruments and treatment of data; annual course of the frequency distribution of wind directions, of gradient wind as dependent on distribution of atmospheric pressure; gradient wind and influence of topography on wind direction; monsoonal tendency; a local wind system between the Erzgebirge and lowlands, the diurnal march of wind, annual course of wind velocities, and of wind velocity regardless of individual wind directions, frequency of wind velocities; annual course of calms and storms, and irregularities of wind in its annual course at Wahnsdorf. *Subject Headings:* **1. Wind regime 2. Wind data 3. Saxony Germany.**—*I. L. D.*

3.7–136 551.55

Gandin, L. S. and Soloveĭchik, R. E., **O skheme Prandtlia v teorii turbulentnosti.** [On Prandtl's scheme in the turbulence theory.] *Leningrad. Glavnaia Geofizicheskaia Observatoriia Trudy*, No. 23(85):49–65, **1951.** 2 figs., 56 equations. **DLC** -The authors examine critically and didactically the hypothesis of PRANDTL's equations for turbulent movement. Using PRANDTL's approach, they examine all the dynamic problems arising in the study of turbulent flow on a plane surface and in a cylindrical tube. *Subject Headings:* **1. Turbulence theory 2. Turbulent flow. I. Prandtl, Ludwig.**—*I. L. D.*

3.7–137 551.551 551.51

Goldstein, S., **On the law of decay of homogeneous isotropic turbulence and the theories of the equilibrium and similarity spectra.** *Cambridge Philosophical Society, Proceedings*, 47(3)

554–574, July **1951.** 21 refs., 111 equations. **DWB** Since KOLMOGOROV's theory of equilibrium spectra is satisfied only at very high Reynolds numbers, an extension of this theory is proposed. This extension gives the law of decay devised by C. A. LIN. A more general law is also derived from an extension of HEISENBERG's theory of the similarity spectrum. An experiment is suggested to test some results. *Subject Heading:* **1. Turbulence theory.**—*A.A.*

3.7–138 551.551:629.13

Nye, Willis L., **Rough-air-flight.** *Skyways*, New York, 10(5):16–17, 42, 59, May **1951.** figs. **DLC**—"Gusty air conditions," their effect on aircraft and requirements set by CAA regarding airplane design are discussed. Suggestions are offered for the pilot's behavior during turbulent weather. *Subject Headings:* **1. Gustiness 2. Clear air turbulence 3. Aeronautical meteorology.**—*G.T.*

3.7–139 551.553.2:551.513.2(26)

Jordan, Charles L. (*Dept. of Met., Univ. of Chicago*), **Charts of the horizontal components of the mean surface wind over the oceans for January and July.** *American Meteorological Society, Bulletin*, 32(10):375–379, Dec. **1951.** 4 figs., 4 refs. **MH-BH**—The resultant wind vector for each five degree tessera (latitude-longitude "square") contained in the "Atlas of Climatic Charts of the Oceans" has been resolved into its N–S and E–W components for January and July between 45°N and 45°S and charts showing the wind components for these months are presented. It is shown that the mean equatorward wind is not caused by a difference between strong equatorward winds in some areas, almost balanced by poleward winds in adjoining areas, and that the highest east wind speeds are everywhere located far from the equator. *Subject Headings:* **1. Surface wind distribution 2. Wind components 3. General circulation 4. Oceans.**—*I.L.D.*

3.7–140 551.553.6

Borsuk, V. N., **K voprosu of metodike vetroenergeticheskikh raschetov.** [On the techniques of wind power calculations.] *Meteorologiia i Gidrologiia*, No. 3:57–59, Nov. **1950.** table. **DLC**—The author points out the deficiencies in the existing climatological wind velocity and frequency data from the standpoint of the utilization of wind power and shows that the method of POMORTSEV, by which wind frequencies at various elevations are calculated from mean annual wind velocities, yielded erroneous results. The method for determining reliable frequencies of wind velocities is presented. *Subject Headings:* **1. Wind power calculations 2. Wind frequencies 3. U.S.S.R.**—*I.L.D.*

3.7–141 551.553.6(43)

Hoffmeister, J., **Verteilung des Windes auf die Windrichtungen und Geschwindigkeitsstufen als Grundlage für praktische Anlagen.** [Distribution of wind by direction and velocity as a basis for practical installation.] *Angewandte Meteorologie*, 1(4):121–127, Jan. **1952.** 3 tables, 2 refs. **DWB**—Hourly frequencies of winds from 8 directions for 10 velocity stages are tabulated for 12 months and year for Kaliningrad (Königsberg), 1923–30; Potsdam, 1921–30 and Bremen, 1921–30. Effective heights of anemometers are discussed and HELLMAN's reduction formula to other heights quoted. *Subject Headings:* **1. Wind data 2. Germany.**—*C.E.P.B.*

3.7–142 551.553.6:519.241

Sherlock, R. H. (*Univ. of Michigan*), **Analyzing winds for frequency and duration.** *Meteorological Monographs*, Boston, 1(4):42–49, Nov. **1951.** 10 figs., 3 tables, 5 refs. **MH-BH**—For each factory there is a critical wind velocity for each direction, above which downwash of stack gases occurs. For Chicago for each day fastest mile, hourly runs and maximum 5-minute winds are available. Smooth Pearson type III frequency curves (skew) are fitted to the histograms. Examples are given for the typical year 1946 and for 1940–47, showing use of accumulated frequency curves on probability paper. S.W. winds were most often above the critical level, which is low for that direction. Mean and standard deviation of fastest mile, and frequency and average duration of critical velocities for each direction are tabulated, but the latter are valid only for the plant used in the investigation. *Subject Headings:* **1. Wind frequencies 2. Statistical studies 3. Smoke diffusion 4. Chicago.**—*C.E.P.B.*

3.7–143 551.556.3:621.311.24:016

†London Science Museum. Science Library, **The generation of electricity by wind power.** *SCIBIB* No. 329, Dec. 14, **1950.** sheet. 11 British refs. 1942–1940.—*Subject Headings:* **1. Bibliographies 2. Wind utilization.**

3.7–144 551.557

Manning, L. A., **Windmessungen in der oberen Atmosphäre.** [Wind measurements in the upper atmosphere.] *Umschau*, Frankfurt a.M., 51(8):245–246, April **1951.** 2 figs. **DLC**—Popular report on measurement of wind velocity at heights of 50 to 70 miles, by radar echoes from ionization trails persisting after the passage of meteors, as carried out at Stanford University, California. An explanatory schematic drawing and data on wind velocity recorded during the summer 1949 are presented. *Subject Headings:* **1. Upper wind measurement techniques 2. Wind velocity.**—*G.T.*

3.7–145 551.557:551.547

Reinecke, Ingrid, **Abweichungen vom Gradientwind in der oberen Troposphäre.** [Departures from the gradient wind in the upper troposphere.] *Annalen der Meteorologie*, 4(1–6):226, **1951. MH-BH**—Summary of a paper in: *Berlin. Freie Universität. Institut für Meteorologie und Geophysik, Meteorologische Abhandlungen*, 1(1), 1950. Inflow to low pressure at the ground must be compensated by outflow at higher levels; this is found statistically to be about 4°, varying with pressure type. *Subject Heading:* **1. Ageostrophic winds.** –*C.E.P.B.*

3.7–146 551.557:551.508.57

Venkiteshwaran, S. P. and Yegnanarayanan, S., **Radar measurements of upper winds over Poona during the southwest monsoon.** *Indian Journal of Meteorology and Geophysics*, 2(3):228–232, July **1951.** 2 figs., tables. **MH-BH** –Except for the information available from pilot balloon observations in clear spells, no observations of upper winds above the cloud level were available during monsoon months (June to Sept.) until recently. In this paper the upper winds up to 10 km and more during two monsoon periods are summarized. Mean wind speed and direction at different heights is shown graphically for monsoon months, and isopleths of east-west components are given. When the monsoon is active near Poona, it is approximately 6 km deep and blows from the west. Aloft, the wind changes sharply to east. In the winter months strong west winds above 5 km and east winds below this level are observed. *Subject Headings:* **1. Radar measurement 2. Upper air winds 3. Monsoons 4. Poona, India.**—*A.A.*

AQUEOUS VAPOR AND HYDROMETEORS

HUMIDITY AND EVAPORATION

(*See also item:* 3.7–112)

3.7–147 551.57:551.506.3(46)

Due Rojo, Antonio, **La humedad atmosférica en el Observatorio de Cartuja.** [Atmospheric humidity at the Cartuja Observatory.] *Revista de Geofísica*, Madrid, 10(38):131–138, April/June **1951.** graphs. **DWB** Tabular and graphic presentation of monthly and annual air temperature, pressure, relative humidity, evaporation, days with dew, hoar frost, fog, and haze (calima) and a brief description of the annual regime of these elements, based on 41–49 years of record at Cartuja Observatory near Granada, Spain. Humidity-temperature and humidity-pressure climagrams are also shown. *Subject Headings:* **1. Hydrometeors 2. Relative humidity 3. Cartuja Observatory 4. Granada, Spain.** *M.R.*

3.7–148 551.571:677

Ashpole, D. K., **The moisture relations of textile fibres at high humidities.** *Royal Society of London, Proceedings, Ser. A*, 212:112–123, **1952.** 11 figs., table, 23 refs. **DWB** –Describes a technique for determining moisture content of textiles in completely saturated air. Determinations were made at humidities from 99.0 to 100.0 R.H. at 25°C for 1–7 days, showing

a steep rise between 99.9 and 100.0 and much higher absorption than previously reported, but there is no true equilibrium. *Subject Headings:* **1. Humidity measurement 2. Textiles.**—*C.E.P.B.*

3.7–149 551.571.3:551.524.3:551.501.4

Rusin, N. P., **K voprosu metodiki obrabotki nabliudenii nad vlazhnost'iu vozdukha.** [On the methodology of air humidity observations.] *Leningrad. Glavnaia Geofizicheskaia Observatoriia, Trudy*, No. 25(87):78–82, **1951.** 4 tables, 2 refs. **DLC**—A study of the effect of air temperature measured with an accuracy of 0.5°C upon the mean monthly relative and absolute humidity. Over a period of a year, mean relative humidity values calculated on the basis of actual and rounded off data did not differ by more than ±1%. On the other hand, the maximum deviation of individual values of absolute and of relative humidity calculated on the basis of rounded off figures may differ considerably from the magnitudes of relative and absolute humidity calculated on the basis of actual figures. The precision of these values is not suitable for a study of the physics of the layer near the ground. *Subject Headings:* **1. Humidity measurement 2. Temperature measurement.**—*I.L.D.*

3.7–150 551.571.36:551.524.36:551.555.1:551.577.38

Emon, Jean, **Remarquables anomalies d'humidité et de température sur la région centrale de Madagascar, les 6 et 7 août 1944.** [Remarkable humidity and temperature anomalies in central Madagascar on August 6 and 7, 1944.] *Madagascar. Service Météorologique, Publication* No. 8, July **1947.** 39 p. 11 tables, 6 refs. **DWB**—During this unusual drought, a vapor pressure of 2.8 mb was recorded at 1330 o'clock on Aug. 6, 1944 as compared with an 8-year average of 9.7 mb for the same time. Data on the daily march of dry and wet bulb temperatures, relative humidity, vapor pressure and dew point for Aug. 6, 1944 at Tananarive, on the winds aloft, on the heights of the trade wind inversion and on temperature during Aug. 5, 6 and 7 in central Madagascar are given. Temperature and humidity soundings made during the same time in Mauritius indicate that this excessive drought was associated with a very low altitude inversion of trade winds. Two other examples of extreme drought which occurred in Tananarive during Sept. 1915 and 1931 are described and climatic data are given. *Subject Headings:* **1. Humidity anomalies 2. Temperature anomalies 3. Trade inversion 4. Drought 5. Central Madagascar. I. Madagascar. Service Météorologique.**—*I.L.D.*

3.7–151 551.571.4:551.558.29

§Battan, Louis J., **Vertical transport of moisture.** (In: Chicago. University, Dept. of Meteorology, **Cooperative Research Project on Severe Storms.** Contract Cwb-8136, Final Report Sept. 1951. p. 24–29. charts, 8 refs.) **DWB**—Based on twice-daily radiosonde and rawinsonde data for the United States, the moisture transport and distribution attending a slowly moving high level anticyclone during the period July 2–5, 1947 was investigated. Surface and 500 mb charts and charts of precipitable water (in inches) between 700 and 400 mb levels, and between surface and 700 mb and 24 hr change in precipitable water in these layers are given for each day during the period, along with 700 mb trajectories and cross sections showing vertical distribution of water vapor across the U. S. at 12-hourly intervals. *Subject Headings:* **1. Vertical moisture transport 2. Moisture distribution 3. Cross sections 4. Precipitable water. I. Chicago. University. Dept. of Meteorology II. Contract Cwb-8136.**—*M.R.*

3.7–152 551.573:551.571

Brown, P. R., **Evaporation, humidity and condensation.** *Marine Observer*, 22(156):73–75, April **1952.** 2 photos. **DWB**—Elementary account of physics of evaporation, humidity and condensation, and 2 photos of orographic cloud over Scottish islands. *Subject Headings:* **1. Evaporation theory 2. Humidity 3. Water vapor.**—*C.E.P.B.*

3.7–153 551.573:551.551:016

†Budyko, M. I., **Isparenie v estestvennykh usloviiakh.** [Evaporation under natural conditions.] Leningrad, Gidromet. Izdat., **1948.** 135 p. 26 figs., 8 tables, 235 refs., 107 equations. **DLC**—Without slighting the importance of the contributions of Russian and

especially of Soviet workers in this broad field the author has, in this technical monograph, summarized and organized the results of a vast amount of native and foreign research (both theoretical and practical) on evaporation and turbulent exchange from the soil and from water surfaces. The literature cited covers the entire period of instrumental investigations into the laws governing evaporation, from HALLEY (1687–1694), RICHMAN (1744–1751) and WILD (1874) to PRANDTL (1944) and SHEPPARD (1947) on one hand, and BUDYKO (1945–1948), LAĬKHTMAN (1947), ABUKHOV (1946) and IUDIN (1940–1948) on the other. The several chapters consist of detailed treatment of: 1) equations of heat and moisture balance of the surface layers and the physiogeographical relationship of moisture and heat exchange; 2) progress in research along these lines to date; 3) characteristics of the lower layer of the atmosphere and depth of this "microclimatic" layer; 4) turbulence lapse rates and convection in the ground layer; 5) influence of soil conditions and ground cover on evaporation; 6) methods of measuring or calculating natural evaporation; 7) dependence of evaporation on meteorological elements; 8) heat and moisture balance at the ground in European U.S.S.R. and over the whole earth. The bibliography of 235 refs. contains about 110 from Russian literature; the rest from foreign sources. *Subject Headings:* **1. Evaporation 2. Turbulent exchange 3. Energy exchange 4. Bibliographies 5. History of meteorology.**—*M.R.*

3.7–154 551.573:551.579

Meteorological Office discussion. Evaporation as a factor in hydrology. *Meteorological Magazine*, London, 80(954):351–359, Dec. **1951.** fig., 8 refs. **MH-BH**—Summarizes paper by G. S. BENTON, R. T. BLACKBURN, V. O. SNEAD (*see item* No. 4–120 in April 1950 *Meteorological Abstracts and Bibliography*, J. GLASSPOOLE (*item* No. K–191), and H. L. PENMAN (*items* K–100 and K–156, Nov. 1950). A new form of diagram of the hydrologic cycle is presented and discussed. The discussion covered many aspects of the subject. *Subject Headings:* **1. Evaporation 2. Hydrology.**—*C.E.P.B.*

PRECIPITATION

(*See also items:* 3.7–37, 3.7–134, 3.7–150)

3.7–155 551.577:551.579.5:551.510.42

Middleton, Helen K. and Matchett, Sonya W. (*eds.*). **Hydraulic research in the United States.** *U. S. National Bureau of Standards, Miscellaneous Publication* No. 201, Aug. 20, **1951.** 190 p. "Foreign Publications," p. 159–167; "Translations," p. 168–169. Price $1.25. **DWB**—The nature, location and progress of various research projects on rainfall, snowfall, soil moisture and air pollution are listed. *Subject Headings:* **1. Meteorological research projects 2. Translations 3. Publication lists 4. Atmospheric pollution.** *I.L.D.*

3.7–156 551.577.11:551.574.1

Mason, B. J. and Howorth, B. P. **Some characteristics of stratiform clouds over North Ireland in relation to their precipitation.** *Royal Meteorological Society, Quarterly Journal*, 78(336):226–230, April **1952.** 2 figs., table, 2 refs. **DWB**—Analysis of St.-cloud thickness and temperature, and surface precipitation at Aldergrove showed that drizzle fell mainly from clouds above −5°C and thicker than 2000 ft —suggesting growth by coalescence. Rain or snow fell mainly from clouds with tops below −12°C —suggesting ice crystals. Nonprecipitating clouds mostly had thickness less than height of their base. *Subject Headings:* **1. Rain formation 2. Stratus clouds 3. North Ireland.**—*C.E.P.B.*

3.7–157 551.577.12

Aujeszky, László, **Kisérlet a csapadékadatok feldolgozásának tökéletesítésére.** [An attempt at a more rational way of representing precipitation data.] *Időjárás*, 54(1–2):18–26, Jan.–Feb. **1950.** 3 tables, 2 refs. English summary p. 63. **DWB**—It is pointed out that warm front and cold front precipitation differ considerably as to their effect on agriculture, highway communication, etc. Author claims to be the first to attempt to classify precipitation statistics according to frontal origin. The method used in discriminating between warm and cold front rain is explained. Monthly warm and cold front type precipitation data for Budapest over the period 1946–1949 are presented and compared. *Subject Headings:* **1. Precipitation classification 2. Frontal type precipitation 3. Budapest, Hungary.**—*G.T.*

3.7–158 551.577.3:551.579.1

Debenham, Frank, **The water problems of Africa.** *Royal Society of Arts, Journal*, 100(4864):147–158, Jan. 11, 1952. 7 photos. **GB-MO**—In British tropical Africa the problem is a short rainy season and steep slopes to the sea. The possibilities of water conservation are discussed; by swamps, small weirs or dams, and large-scale irrigation projects. A shorter version appears in *Water and Water Engineering*, 56:21–24, 1952. *Subject Headings:* **1. Hydrology 2. British Tropical Africa.**—*C.E.P.B.*

3.7–159 551.577.3:551.506.1(676)

*East Africa High Commission. Meteorological Dept., **Summary of rainfall for the year 1950; Part I, Kenya; Part II, Tanganyika; Part III, Uganda.** Nairobi, June **1951.** 3 pieces. **DWB**—Stations in the network are listed alphabetically with coordinates, altitude, drainage area and district, and also alphabetically by district. About 600 stations in Kenya, 400 in Tanganyika, and 275 in Uganda are listed. Total monthly rainfall, average, maximum in 24 hours and date, number of rainy days and number of years record used in computing average. A supplementary list gives daily rainfall for numerous stations which did not appear in the monthly bulletins. A separate table in the Tanganyika section gives rainfall at a number of gages on the slopes of Mt. Kilimanjaro (ranging from 7,200 ft to 16,000 ft elevation). The heaviest fall (150 in) occurred at the lowest station on the southeast slope. *Subject Headings:* **1. Rainfall data 2. Annual reports 3. Kenya 4. Uganda 5. Tanganyika 6. British East Africa.**—*M.R.*

3.7–160 551.577.3:551.586:633.63(439.1)

Juhász, László, **A csapadékmennyiség és a cukorrépatermések közti összefüggés statisztikai vizsgálata.** [A statistical investigation of the dependence of sugar beet crop on precipitation.] *Időjárás*, Budapest, 54(1–2):27–29, Jan.–Feb. **1950.** fig., table. **DWB**—The effect of monthly rainfall on the amount of sugar beet crop in Hungary is investigated and comparative data presented in tables and graphs. It is found that a definite correlation exists between sugar beet crop and the amount of precipitation in May and August and possibly March. *Subject Headings:* **1. Precipitation effects 2. Agricultural meteorology 3. Sugar beets 4. Hungary.**—*G.T.*

SNOW

(*See also item:* 3.7–203)

3.7–161 551.578.45

Schalko, Margarethe and Steinhauser, Ferdinand, **Gross-Schneefälle in Österreich.** [Great snowfalls in Austria.] *Austria. Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch*, v. 87, Abhang 8:D65–D75. **1950.** fig., 6 tables. **DWB**—A "great snowfall" is one which brought at least 20 cm depth of snow from one daily observation to the next. Regional monthly frequency and depth of snow (up to 90 cm) tabulated and associated weather types summarized—most often west and N.W. type (177), Genoa and Vb types (113) and cold air outbreaks from N. or N.E. (15). The great snowfall of Jan. 15–21, 1951, is described in detail. *Subject Headings:* **1. Snowstorms 2. Snowfall extremes 3. Austria.**—*C.E.P.B.*

3.7–162 551.578.46

Ashmore, S. E., **The snow-bed in Y Ffos Ddyfn.** *Journal of Glaciology*, London, 2(11):65–66, March **1952.** fig., 2 refs. **DWB**—Snow cover on Carnedd Llywelyn (53°9′N, 3°50′W) in 1950–51 was longest and deepest since 1879, forming on Nov. 12 and lasting till late July. Total snowfall 52 ft. Graph shows temperature, rainfall, snowfall and winds. *Subject Headings:* **1. Snow cover 2. Wales.**—*C.E.P.B.*

3.7–163 551.578.46:551.311.12

Callendar, G. S., **The effect of the altitude of the firn area on a glacier's response to temperature variations.** *Journal of Glaciology*, London, 1(10):573–576, Oct. **1951.** fig., 5 refs. **DWB**—Sets out altitude curves of accumulation, ablation and net accumulation in relation to firn line for Vatnajokull (Iceland) and relates them to firn fields at 3 levels. *Subject Headings:* **1. Firn 2. Glaciers 3. Iceland.**—*C.E.P.B.*

3.7–164 551.578.46

Clyde, George D. and Houston, Clyde E. (*Logan, Utah*), **Benefits of snow surveying.** *Western Snow Conference, Proceedings*, 19th Annual Meeting, April **1951.** p. 84–99. 5 figs. Discussions by Lang, W. A., Riter, John R., Templeton, G. W., and Blanchard, F. B. p. 99–107. fig. **DWB**—*Subject Heading:* **1. Snow surveys. I. Lang, W. A. II. Riter, John R. III. Templeton, G. W. IV. Blanchard, F. B.**

3.7–165 551.578.46:551.588.2

Daniels, Glenn E. (*U. S. Corps of Engineers*), **Areal distribution of snow cover in relation to weather and terrain at Upper Columbia Snow Laboratory.** *Western Snow Conference, Proceedings* 16th Annual Meeting 1948, Feb. **1949.** p. 170–186. 9 figs., table. Discussion by Paulson, Joseph B. p. 186–187. **DWB**—*Subject Headings:* **1. Snow cover distribution 2. Upper Columbia Snow Laboratory. I. Paulson, Joseph B.**

3.7–166 551.578.46

*deQuervain, Marcel R. (*Swiss Snow Research Inst.*), **Snow and ice problems in Canada and the U. S. A.** *National Research Council of Canada, Div. of Building Research, Technical Report* No. 5, Feb. **1950.** 70 p. 17 figs., 31 photos, 6 tables. **DWB**—Very thorough study of snow and ice conditions of Canada by a noted Swiss authority. The following problems are discussed in some detail: snow surveying, snow melt and runoff, glaciers, snowdrifts, avalanches and avalanche protection, snow removal from highways, streets, airports, railroads and use of heat in snow clearing, snow compaction, snow travel, river and lake ice, icing in the atmosphere, permafrost, snow and ice research in 11 countries, classification of snow literature, and maintaining a bibliography. Many excellent charts and photographs are included. *Subject Headings:* **1. Snow and ice research 2. Canada. I. Pearce, D. C. II. National Research Council of Canada. Div. of Building Research.**—*M.R.*

3.7–167 551.578.46

Dmitrieva, N. G., **Raschet plotnosti snezhnogo pokrova po meteorologicheskim dannym.** [Calculation of the density of the snow cover from meteorological data.] *Meteorologiia i Gidrologiia*, No. 2:39–44, Oct. **1950.** 2 figs., 2 tables, 6 refs., 4 equations. **DLC**—Regular observations on the density of snow cover were started in Russia in the winter season of 1903–1904. However, at present, the Hydrometeorological Service of the U.S.S.R. does not have enough material on this phenomenon for many parts of the country (Ukraine, northeastern part of European Russia, Siberia and mountain regions). The investigations made previously show that the density of early snow cover varied from 0.056 (in case of large snowflakes) to 0.135 (small snowflakes). But a short time after fall, the density of snow cover increases up to 0.14–0.16. The author's investigations confirm the correctness of these values. The increase of snow cover density during winter season reached the value 0.20–0.23. The analysis of the conditions important for the increase of snow cover density show two causes of this increase: wind velocity and thawing. The relation between the density of snow cover, thawing weather and wind velocity is: $P = P_0 + 0.004\,\tau_v + K\sqrt{\Sigma\theta_t}$, where θ_t, P_0 and P are early and late density of snow cover, τ_v—number of days with wind velocity $\geqslant$ 6m/sec; $\Sigma\theta_t$—sum of the daily positive temperatures at the end of the calculation period and K—empirical coefficient (for density <0.26 it is 0.007 and for density $\geqslant 0.26$ it is 0.062). The verification of this method was made by the calculation of 720 cases. The comparison of computed and observed values shows that in the regions with stable winter regime the probable error in 91% of cases was $\leqslant \pm 0.03$. The worst results were in the southwest; there the probable error was more than ± 0.03 in 17% of cases. *Subject Headings:* **1. Snow cover density 2. U.S.S.R.**—*N.T.Z.*

HYDROMETEOROLOGY

(*See also items:* **3.7–47, 3.7–79, 3.7–154, 3.7–155, 3.7–158**)

3.7–168 551.579

Friedrich, Wilhelm, **Die Bedeutung der Bodenfeuchte für die Gewässerkunde und Wasserwirtschaft** [The significance of soil moisture in hydrology and water economy.] *Germany. Deutscher Wetterdienst in der US-Zone, Berichte* No. 32:13–15, **1952.** German

summary p. 13. DWB—Measurement of soil moisture is now one of the major problems in hydrology, especially for runoff forecasting. *Subject Headings:* 1. Soil moisture 2. Hydrologic cycle 3. Runoff forecasting.—*A.A.*

3.7–169 551.579:551.582.1(794)

Pardé, Maurice and de Beauregard, Jean, **Études hydrologiques sur le Sacramento et ses tributaires.** [Hydrologic studies on the Sacramento and its tributaries.] *Révue de Géographie Alpine*, 36(1):103–143, 1948. graph, map, tables. DWB—The authors summarize briefly the characteristics of the climate of northern California; temperature, precipitation (annual totals, monthly distribution, thunderstorms) and snow; the soil and relief; and give a detailed discussion of the hydrologic regime. *Subject Headings:* 1. Hydrologic studies 2. Climate of California 3. Sacramento River, California.—*I.L.D.*

3.7–170 551.579(54)

Pramanik, S. K. and Rao, K. Nagabhushana, **Hydrometeorology of Koyna catchment.** *Indian Journal of Meteorology and Geophysics*, Delhi, 2(3):232–234, July 1951. fig. MH-BH—Short account of investigations of rainfall and runoff in the drainage basin of the Koyna River is given. Mean rainfall is 181", 95% of which occurs during the monsoon months; mean runoff is 167". Frequency distribution of rainfall is calculated. Different rain gage readings and rainfall and runoff correlations are examined. *Subject Headings:* 1. Hydrometeorology 2. Rainfall 3. Runoff 4. Koyna River Basin, India.—*A.A.*

3.7–171 551.579.5:06:63

Laskowski, B. R., **Soil moisture reporting by a Weather Bureau State Service.** *American Meteorological Society, Bulletin*, 32(6):216, June 1951. MH-BH—The soil moisture reporting service organized by the author in South Dakota is described. Measurements of the depth of the moist soil at the close of each month are sent in by observers and these data are used to forecast soil moisture conditions. The relationship between soil moisture and rainfall and snow, and between soil moisture and the growth of grasses and grains is discussed. *Subject Headings:* 1. Meteorological services 2. Agricultural climatology 3. Soil moisture.—*I.L.D.*

CLIMATOLOGY AND BIOCLIMATOLOGY

CLIMATOLOGY

3.7–172 551.58:001(47)

Kashin, K. I. and Pogosian, KH. P., **K voprosu o klimate i klimatoobrazuiushchikh faktorakh.** [On climate and climate forming factors.] *Meteorologiia i Gidrologiia*, No. 2:10–15, Oct. 1950. 12 refs. DLC—The concept of the term "climate" is discussed and the four main lines of climatological research in Russia are described. They are: 1) classic climatology represented by the work of the Central Geophysical Observatory, 2) complex climatology introduced by E. E. Fedorov, 3) dynamic climatology represented by Alisov and 4) physical climatology by Kochin, Shuleĭkin, Sapozhnikova and Kashin. The authors explain their own viewpoint on climate forming factors considering the radiation influence of the ground surface and the atmospheric circulation. The investigation of the interaction of the above mentioned factors is the principal problem of future climatology. It is noted that for the new method of climatological investigations, punched card archives must be established, which must present all the observational data recorded at meteorological stations. *Subject Headings:* 1. Climatological research 2. Definitions 3. U.S.S.R. – *N.T.Z.*

3.7–173 551.58

Brunt, Sir David, **Living with the climate. Essay review of: Climate in everyday life by C. E. P. Brooks.** *Science Progress*, London, 40(158):322–326, April 1952. DWB—(*See item* No. 2.1–149 in Jan. 1951 *Meteorological Abstracts.*) The review deals largely with the effect of environment on the disposal of body heat. *Subject Headings:* 1. Climatology 2. Physiological climatology 3. Reviews. I. Brooks, Charles E. P.

CLIMATOLOGY OF PARTICULAR PLACES

(*See also items:* 3.7–40, 3.7–44, 3.7–46, 3.7–48, 3.7–101, 3.7–169, 3.7–189)

3.7–174 551.582:551.506.3(435.9)

*†Lahr, Eugène (*Luxembourg*). **Un siècle d'observations météorologiques appliquées à l'étude du climat Luxembourgeois.** [A century of meteorological observations applied to a study of the Luxembourg climate.] Luxembourg, Bourg-Bourger, **1950.** 282 p. ports., diagrs., charts, fold. graphs. **DLC** – A tremendous amount of data collected over the past century in the Grand Duchy of Luxembourg is presented in numerous tables under various headings, and in graphic form for several discrete periods, 1838–1870, 1871–1900 and 1901–1948. In addition, there is a chapter on the history of the observations made in the early years at the Lycée and by the official service, which began in 1907, as well as biographical material on the most important figures in the meteorology of the country. The presentation is classical but very thorough – numerous charts showing isopleths of various elements at different seasons and wind roses are included. A description of peculiar events during each year from 1838–1900 is appended along with a bibliography of the works of Luxembourg scientists. *Subject Headings:* **1. Climate of Luxembourg 2. Climatic data 3. Long period records 4. Biography 5. Luxembourg.**—*M.R.*

3.7–175 551.582(6)

*O'Donohue, B. V. (*comp.*). **The transition belt between tropical savanna and low-latitude steppe in North Africa.** *Western Australia. University, Geographical Laboratory, Research Report* No. 26, June 1951. 16 p. tables, map, refs. **MH-BH** – Geographical and climatic aspects of a belt extending across Africa between 13° and 16°N are described and their effect on vegetation, animal life and human living discussed in an elementary fashion. Temperature, pressure and precipitation characteristics are summed up. Monthly mean precipitation data presented from >60 stations in Mauritania, Senegal, French Sudan, Niger Territory, Chad Colony, Nigeria and Anglo Egyptian Sudan, and precipitation effectiveness for 21 stations in the same area are based on records of varying length, the longest being for 34 years. *Subject Headings:* **1. Climatic data 2. Precipitation effectiveness 3. Central Africa.**—*G.T.*

3.7–176 551.582.1(443.611)

Maurain, Charles Honoré, **Le climat parisien.** [The climate of Paris.] Paris, Presses Universitaires de France, **1947.** 162 p. tables, graphs, refs. **DWB** – The Paris region is fortunate in the large amount of meteorological data of various types that is available—much of it for over 100 years of continuous record. In addition, it is fortunate that there are specialists who have gone to a great deal of effort to analyze and interpret this wealth of data. In this popular edition on the climate of Paris, the author has condensed much of this technical knowledge on the radiation conditions, temperature, precipitation, wind, humidity, atmospheric electricity; on the atmospheric pollution and special effects of the metropolitan area on radiation, temperature, humidity and rain; on the micrometeorological conditions; and on the relations between climate and human activity, clothing, housing and forecasts. *Subject Headings:* **1. Urban climates 2. Climate of Paris 3. Paris, France.**—*M.R.*

3.7–177 551.582.1(46)

Soroa y Pineda, José María de, **Los climas de España.** [The climate of Spain.] 2nd ed. cor. and aug. Madrid, Ministerio de Agricultura, Sección de Publicaciones, Prensa y Propaganda [1945], 88 p. **DWB** – A pocket-size descriptive (almost literary) climatology of the various provinces of Spain. A small amount of data on average and extreme temperatures, mean annual rainfall and cloudiness is included in each chapter and one generalized chart showing the climatic zones of Spain is appended. The country is divided into ten climatic provinces, with two additional chapters on the Balearic Islands and the Canaries, respectively. The work is probably intended for those interested in agriculture. *Subject Headings:* **1. Climate of Spain 2. Spain.**—*M.R.*

3.7–178 551.582.2(485)

[illegible] Meteorological and Hydrological Institute. Contributions to aeronautical climatology of Sweden. Part I. Stockholm, 1949. 52 p. 4to. tables. DWB—A valuable assessment of aerological data for Bromma, Stockholm and Kallinge based on observations made 00.00, 12 and 18 hr, 1947 (part). Contains summary and annual number of cases of visibility [illegible] m and of cloud height [illegible] m, for specified wind directions and speeds. Also, monthly frequency distributions (under 5–10 of visibility, cloud heights, wind direction and speed, surface temperature and dew point, thunderstorms and occurrences of rain with temperature 0–2°C, of mist at temperatures below or equal to dew point and cloud heights. *Subject Headings:* 1. Aeronautical climatology 2. Climatic data 3. Sweden. *A. F. C.*

3.7–179 551.582.2(71):551.506.7

[illegible] Weather Bureau. Climatological summary, Eureka, N.W.T. Canada. New Orleans, 1951. 51 p. mostly tables. 8 maps. DWB—Following description of Eureka Weather Station which is operated jointly by the United States and Canadian governments, tables present the following: 1) summarized surface data for Jan. 1948–Dec. 1950 (6-hourly observations), 2) daily surface data for each month from May 1947–Dec. 1950 and 3) summarized upper air data for June 1947–Dec. 1950 (observations at 0000 and 1500 G.M.T.). A sunshine frequency graph and sunshine charts for Jan. and July are included. A note states that the [illegible] were compiled from punched cards. *Subject Headings:* 1. Climatic data 2. Upper air data 3. Punched card applications 4. Eureka, Canada.—*M. L. P.*

CLIMATIC CHANGES

(See also items: 3.7–97, 3.7–126, 3.7–127)

3.7–180 551.583.1/2 551.524.34

Hans R. Hamberg. [illegible] Dept. of Geography. Some notes on postglacial climatic change in eastern Canada. *Royal Meteorological Society, Canadian Branch. [Pamphlet]* [illegible] 1951. 1 volume 20 refs. DWB—A summary of the methods and results of postglacial climatology in Europe is followed by a review of the rather sparse similar work in eastern Canada. Instrumental records show a general rise of temperature from 1885 to 1945 [illegible] marked fluctuations especially a maximum about 1930. The variations are similar to those in N. Europe. *Subject Headings:* 1. Climatic variations 2. Temperature trends 3. Canada.—*C. E. P. B.*

3.7–181 551.583.13:551.524:639

Schumacher-Jenke, W. Klimaschwankungen in der Arktis beeinflussen die Fischerei. [Climatic variations in the Arctic influence fishing.] Munchen, Frankfurter a.M. [illegible] 1951. [illegible] refs. DLC—The penetration of various species of fish into northern seas and [illegible] their usual range is ascribed to warming of the polar region. Temperature records for the Netherlands and Norway covering long periods and indicating a noticeable rise in temperature during the last decades are referred to and those for the Netherlands particularly recommended as they go back to the beginning of the 19th century. *Subject Headings:* 1. Climatic variations 2. Temperature 3. Fishing 4. Norway 5. Netherlands 6. Arctic.—*G. T.*

3.7–182 551.583.14:551.553.4

Friedewald, Martin. Ändert sich unser Klima? [Is our climate changing?] Mitteilungen Hamburg, No. 34:31–51. Feb. 1952. 6 figs., table. DWB—Frequency of storms and strong winds in eastern N. Atlantic in Nov. and Dec. 1951, very high. This was due to deepening of depressions on E. of frontal zone between cold and warm air, running N.E. off Nova Scotia and Newfoundland. The atmospheric circulation has strengthened in N. Atlantic since 1925, but weakened in N. Pacific. Hamburg has had excess of temperature in 1942–51. Cause may be increased CO_2 due to coal burning. *Subject Headings:* 1. Climatic changes 2. General circulation 3. North Pacific 4. North Atlantic.—*C. E. P. B.*

3.7–183 551.583.2/3:551.588.1

Markov, K. K., **A. I. Voeĭkov kak istorik klimatov zemli.** [A. I. Voeĭkov as a historian of the earth's climates.] *Akademiia Nauk, SSSR, Izvestiia, Ser. Geogr.*, No. 3:46–54, **1951.** 13 refs. **DLC**—Voeĭkov stressed the importance of physical geographic factors in paleoclimates, in particular the differential influence of continentality and of oceans in the formation of glaciers so that there was no uniform rhythm of glacier formation in the Quaternary, and explained the woody flora of circumpolar regions in the Tertiary as the result of inflow of warm oceanic currents. He pointed to the greater climatic variations during historic times in high than in low latitudes and ascribed this to changes in the inclination of the earth's axis. He also denied that climatic change had caused the drying up of Central Asia. Voeĭkov also examined the role of solar radiation, periodic changes in the form of the earth's orbit and in the inclination of the earth's axis in climatic change. *Subject Headings:* **1. Paleoclimatology 2. Climatic changes 3. Continentiality 4. Glaciation. I. Voeĭkov, Aleksandr Ivanovich.**—*I.L.D.*

MICROCLIMATOLOGY

(*See also item:* 3.7–10)

3.7–184 551.584:551.524.4:551.558.1

Skvortsov, A. A., **O teplovoĭ konvektsii i obmene v prizemnom sloe atmosfery.** [Heat convection and exchange in the surface layer of the atmosphere.] *Akademiia Nauk SSSR, Izvestiia, Ser. Geofiz.*, No. 6:60–80, Nov.–Dec. **1951.** 6 figs., 9 tables, 4 equations, 4 refs. **DLC**—The convective heat exchange on heated surfaces was investigated experimentally by measuring with thermocouples the continuous oscillations in air temperature in the lowest four meters of the atmosphere adjacent to the ground. Differences in duration of oscillations and of amplitudes of temperature at various levels confirm a previously established hypothesis that convective heat exchange proceeds by the formation of convective layers formed by ascending and descending air currents which die out in the course of transfer of heat from the ascending air and from mass of heated air to cooler descending currents and which are reformed by the periodic destruction and reestablishment of layers. The existence of three such convective layers is established and their properties are described qualitatively. This hypothesis is used to explain the behavior of smoke screens. The theory of convective heat exchange by means of convective layers is found to agree with the theory of local turbulence of Kolmogorov. A new method of calculating evaporation from natural surfaces is developed. *Subject Headings:* **1. Convective heat exchange 2. Turbulent exchange 3. Convection 4. Evaporation.**—*I.L.D.*

3.7–185 551.584.31

Mann, Heinrich, **Ein Beispiel starken sommerlichen Bodenfrostes.** [An example of a severe summer ground frost.] *Angewandte Meteorologie*, 1(3):91–92, Dec. **1951.** 3 figs. **DWB** On June 1, 1951 lowest official grass minimum in eastern Germany was −1°C but in a nursery garden in Potsdam −3.5°C was recorded at a height of 1½ m in a greenhouse. In an anticyclonic situation, a cold air mass formed in wind shadow of Kaninchen Hills and flowed through a 20 mm gap under the roof, doing great damage. *Subject Headings:* **1. Frost damage 2. Micrometeorology.**—*C.E.P.B.*

3.7–186 551.584.4:551.585.55:551.506.5

Mel', M. I., **O meteorologicheskikh issledovaniiakh osoboĭ ekspeditsii lesnogo departamenta, pod rukovodstvom V. V. Dokuchaeva.** [Meteorological investigations of the special expedition of the Forestry Department under the leadership of V. V. Dokuchaev (1892–1897).] *Vsesoiuznoe Geograficheskoe Obshchestvo, Izvestiia*, 83(3):291–299, May–Jun. **1951. DLC** –The views of Dokuchaev on the importance of microclimatic observations in the study of forest, steppe and plant ecology are presented. The organization of microclimatic stations, their program and the instructions which were worked out by Dokuchaev on the expedition sent out to investigate the causes of the great drought of 1891 in Russia is described. The conclusions of Dokuchaev on the climate in steppes and forests are summarized. *Subject Headings:* **1. Microclimatological research 2. Applied climatology 3. Plant ecology 4. Dokuchaev, V. V. 5. U.S.S.R.**—*I.L.D.*

3.7–187 551.584.41

Smal'ko, IA. A., **Novye dannye ob izmenenii temperatury vozdukha i pochvy na poliakh, zashchishchennykh set'iu lesnykh polos.** [New data on changes of air and soil temperature in fields protected by a system of tree shelter belts.] *Akademiia Nauk, SSSR, Izvestiia, Ser. Geogr.*, No. 1:67–70, 1951. 3 figs. **DWB**—Results of analysis of temperature variations in the lowest layers of the atmosphere and the upper layers of soil in open fields, oak forests and fields protected by shelter belts are presented and discussed. Measurements were made at the Vladimir agricultural and forestry experimental station during 1948–1950. Temperature changes occurring during radiational type weather as well as during advection of warm and cold air are considered separately and depicted graphically. *Subject Headings:* **1. Micrometeorology 2. Soil temperatures 3. Air temperatures 4. Shelter belts 5. Vladimir, U.S.S.R.**—*A.M.P.*

CLIMATIC CLASSIFICATION

(*See also items:* 3.7–125, 3.7–186)

3.7–188 551.585

Boerman, Willem Everhard, **Klimaat, klimaattykes, klimaatgebieden, Bodemproductie, Bevolkung.** [Climate, climatic types, climatic regions, agriculture and population.] 2nd ed. Gorinchem, 1949. 258 p. diagrs., charts, biblio. *Noorduijn's Welneschappelijke Reeks*, 25. **DWB**—General principles involved in establishing climatic indexes and several climatic classifications are discussed. A separate chapter is included for each climatic type (KÖPPEN) with illustrative tables and charts and a discussion of regional peculiarities of the various continents. Effects of climates on particular crops are taken up and illustrated. The author also refers to HUNTINGTON's "standard climagram" and discusses effect of climate on population density. There is also a chapter on the climate of the oceans. *Subject Headings:* **1. Climatic classification 2. Climatic indexes 3. Climagrams 4. Climate of oceans 5. Population 6. Agricultural climatology.**—*G.T.*

3.7–189 551.585.53:551.582.2(5)

Sapozhnikova, S. A., **Nekotorye osobennosti klimata oazisov v usloviiakh Sredneĭ Asii.** [Some characteristics of the climate of oases in Central Asia.] *Vsesoiuznoe Geograficheskoe Obshchestvo, Izvestiia*, 83(3):231–235, May/June 1951. 2 tables, ref. **DLC**—The climatic characteristics of oases were investigated on the basis of meteorological data collected in 5 physiographic regions: (1) deserts, (2) small oases, (3) large oases, (4) swampy areas and (5) coasts and islands of the Aral Sea. Data showing the reduction in temperature and increase in absolute and relative humidity of air of oases in comparison with that of deserts are given. The physical reasons underlying these differences are discussed thoroughly. Evaporation from water surfaces was calculated by the formula of ZAĬKOV, namely $E=0.2\ ncD_2^{0.73}(1+0.85w)$, where E = evaporation for a given interval in mm; n = number of days in interval; c = factor which depends upon the difference between the temperature of evaporation of the surface and the temperature of the air; D_2 = moisture deficit of air in mm at a height of 2 m; w = wind velocity at a height of 1 m. *Subject Headings:* **1. Climatic regions 2. Deserts 3. Oases 4. Central Asia.**—*I.L.D.*

BIOCLIMATOLOGY

(*See also items:* 3.7–10, 3.7–98, 3.7–112, 3.7–127, 3.7–160, 3.7–165, 3.7–183)

3.7–190 551.586:581.1

Beadle, N. C. W., **The misuse of climate as an indicator of vegetation and soils.** *Ecology*, Brooklyn, N. Y., 32(2):343–345, April 1952. 4 refs. **DWB**—For a number of years meteorologists have protested against the practice of using vegetation and soils as indicators of climate. Now the pedologists are protesting against the use of climate or climatic classification as indicators of vegetation or soil types. Unfortunately, plant ecologists and geographers are still drawing such charts and will probably continue to do so even when more detailed data are available. As an example, a gross error was made in mapping the vegetation of New South Wales (THORNTHWAITE and BLUMENSTOCK, 1941) from the apparent analogy of

that climate with that of the prairie regions of North America, when actually the Australian region is forested with eucalyptus. Even the climate itself is not completely analogous. *Subject Headings:* **1. Climatic classification 2. Plant ecology 3. Pedology 4. New South Wales.**—*M.R.*

3.7–191 551.586:63

Brablec, Josef, **Klimatické vymezení oblastí v ČSR, vhodných pro pěstovani rýže.** [Climatic definition of areas in Czechoslovakia suitable for growing rice.] *Meteorologické Zprávy*, Prague, 4(5/6):110–113, **1950.** 3 figs., table, 7 refs. **MH-BH**—Phenological requirements of rice growing are studied and determined in terms of temperature values for every phase of the plant's development with special attention to the danger of frost. Climatic conditions in Czechoslovakia are investigated and presented in charts showing regions suited for rice growing. It is concluded that climatic conditions in certain parts of southern Slovakia and southern Moravia are satisfactory, partly owing to the decline in the frequency of frosts in late decades (in the course of what is called "capitalistic exploitation"). The possibility of growing certain types of cotton in these areas is also considered. *Subject Headings:* **1. Phenology 2. Rice 3. Cotton 4. Agricultural climatology 5. Frost danger 6. Czechoslovakia.** —*G.T.*

3.7–192 551.586:63

Germany. Deutscher Wetterdienst in der US-Zone, **Die agrarmeteorologische Tagung in Stuttgart-Hohenheim am 14. und 15. April 1951.** [The agro-meteorological conference, Stuttgart-Hohenheim, April 14, 15, 1951.] *Germany. Deutscher Wetterdienst in der U.S.-Zone, Berichte*, No. 32, **1951.** 109 p. **DWB**—This symposium contains 37 short but important papers on soil moisture, improvement of soil climate and climate near the ground, storage climate, wind protection, frost damage prevention, etc. Abstracts of the various papers will be given separately. *Subject Headings:* **1. Conferences 2. Symposia 3. Agricultural meteorology 4. Germany.**—*A.A.*

3.7–193 551.586:63

Kulik, M. S., **O predmete i zadachakh sel'skokhosiaĭstvennoĭ meteorologii.** [On the scope and problems of agricultural meteorology.] *Meteorologiia i Gidrologiia*, No. 4:10–13, Dec. **1950. DLC**—A theoretical discussion of the subject. Its objective is the study of meteorological and climatic factors as conditions for existence of agricultural crops. The points at issue are: 1) cognizance of the favorable influence of agro-meteorological conditions on the development of crops in different geographic regions, 2) determination of changes of agro-meteorological conditions as a result of agricultural techniques, 3) division of the territory of the U.S.S.R. according to agro-climatic peculiarities favorable to individual crops and 4) improvement of methods of agro-meteorological investigations. *Subject Headings:* **1. Agricultural meteorology 2. U.S.S.R.**—*A.M.P.*

3.7–194 551.586:63:524.32:581.543

Lessmann, H., **Die mittlere Jahrestemperatur als hinreichendes Charakteristikum für das allgemeine Bioklima in Südwestdeutschland.** [Mean annual temperature as a sufficient index of the general bioclimate in southwest Germany.] *Baden, Landeswetterdienst, Jahresbericht mit Abhandlungen*, **1949.** p. 19–22. table. **DWB**—In S.W. Germany, between latitude 47.5° and 50°N and longitude 7.5° and 10°E, the mean annual temperature shows a higher correlation with the onset of phenological periods and with later developmental phases than do precipitation and various climatic formulas (such as aridity index of DE MARTONNE, rain factor of R. LANG, etc.). Equations expressing the relationship between mean annual temperature and onset of phenological periods are as follows: $F/10+T=20.8$ and $HS/10+T=28.9$; F = onset of spring, HS = onset of summer and T = temperature in °C. *Subject Headings:* **1. Agricultural climatology 2. Phenology 3. Temperature effects 4. Southwest Germany.**—*I.L.D.*

3.7–195 551.586:63(81

*Memoria, José María Pompeu, **The climate of Viçosa, Minas Gerais, Brazil in relation to its agriculture.** Thesis (*M.S.*)—Iowa State College, **1947.** 73 p. 17 figs., 19 tables, 3

refs. **DWB**—A general description of the climate of Brazil and of Minas Gerais in terms of temperature, precipitation and general circulation is presented. This is followed by a detailed analysis of the air temperature, barometric pressure for Viçosa, Minas Gerais. THORNTHWAITE's temperature efficiency index is applied to describe the climate and moisture indexes of MEYER and THORNTHWAITE are determined. Statistical data on temperature, precipitation, pressure, cloudiness and sunshine, relative humidity and evaporating power over the period 1924–1945 are given. The agricultural aspects of the climate are discussed with reference to the important crops of the area. *Subject Headings:* **1. Agricultural climatology 2. Climatic data 3. Viçosa, Brazil 4. Minas Gerais, Brazil.**—*I.L.D.*

3.7–196 551.586:634:551.524.37

Yoshida, M., **Frost damage on the tea-trees.** *Journal of Meteorological Research*, Tokyo, 3(6):194–198, March **1951.** 3 figs., 2 tables. In Japanese, English summary p. (13). **DWB**—The period and date of frost damage is determined by analyzing weather factors. Methods for preventing frost damage are also discussed. *Subject Headings:* **1. Frost damage 2. Frost prevention 3. Agricultural meteorology 4. Japan.**—*From author's abstract.*

3.7–197 551.586:634.21:551.574.42

Rosenkranz, Friedrich, **Marillenbau und Frost in Niederösterreich.** [Apricot culture and frost in Austria.] *Wetter und Leben*, Vienna, 3(9–10):199–200, Nov. **1951. DWB**—The author lists those parts of Austria, where apricots are cultivated, in which the probability of the appearance of apricot blossoms one week after the last spring frost is 75%. *Subject Headings:* **1. Agricultural meteorology 2. Frost frequencies 3. Apricot culture 4. Austria.**—*I.L.D.*

MISCELLANEOUS APPLICATIONS

SOLAR INFLUENCES

(*See also item:* 3.7–117)

3.7–198 551.590.21

†Brooks, C. E. P., **The relations of solar and meteorological phenomena.** *Commission pour l'Étude des Relations entre les Phénomènes Solaires et Terrestres, Rapport* 7, **1951.** p. 183–198. table, 44 refs. **DWB**—Mechanism of established sunspot temperature cycle is discussed, including effect of large variation of UV radiation. Relations between ozone, pressure and temperature are examined and speculative effects of solar corpuscular radiation on weather considered. Relations between sunspots and pressure, temperature, precipitation and thunderstorms are summarized and their origins (UV or corpuscular radiation) discussed. Short period relations between sunspots and weather are examined with special reference to frequency of thunder. *Subject Heading:* **1. Sunspot effects.**—*C.E.P.B.*

3.7–199 551.590.22:523.74

Evans, W., **Solar flares.** *Scientific American*, New York, 185(6):17–21, Dec. **1951. DLC**—Pictures of three series of solar flares and two individual flares and a group of sunspots, all photographed against the surface of the sun and using various techniques, are presented and commented on. The author states that these eruptions emit mighty blasts of energy which cause auroras and disrupt communications on earth. Tower telescopes of the McMath-Hulbert Observatory, University of Michigan, are shown in a photograph. *Subject Headings:* **1. Solar flares 2. Solar influences.**—*G.T.*

VISIBILITY

3.7–200 551.591.3:628.9

Walther, Friedrich, **Sicht und Beleuchtung während der Dämmerung.** [Visibility and illumination during twilight.] *Austria. Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch*, v. 87. Anhang 9:D76–D82, **1950.** fig. **DWB**—Civil twilight is taken to begin or end when sun is 6° below horizon, but actual time depends on meteorological conditions (cloud, fog, haze), moonlight, distance of horizon, existence of artificial lights, speed and direction of

movement of subject and personal factor, contrast, etc. Author investigated time of lighting-up of traffic and rooms (4 step scale) and shows annual variation of each scale graphically, with an auxiliary cloud scale and some examples of use of scale. *Subject Headings:* **1. Illumination 2. Visibility.**—*C.E.P.B.*

3.7–201 551.591.31(261)

Jameson, H., **A marked diurnal variation of visibility at sea.** *Marine Observer*, 22(156):82–84, April **1952.** 2 figs. **DWB**—Diurnal variation of fog, mist and haze in square 5–10°N., 25–30°W. from ships' observations, shows in Dec.–May marked maximum from 12–16 h. This may be due to absorption of radiation by sand carried by N.E. trade wind, causing an inversion and concentration of sand near the sea. In June–Nov. winds are variable and effect disappears. *Subject Headings:* **1. Visibility 2. North Atlantic Ocean.**—*C.E.P.B.*

3.7–202 551.591.35:551.510.42

Krebs, H. D. and Doege, W. (*Neubiberg*), **Extreme Fälle der Sichtverschlechterung in Neubiberg durch Stadtdunst von München.** [Extreme cases of decrease of visibility in Neubiberg through town haze from Munich.] *Meteorologische Rundschau*, Bad Kissingen, 5(1–2):12–14, Jan.–Feb. **1952.** 5 figs., 6 refs. **MH-BH**—In anticyclonic conditions, wind at Neubiberg, 9 km SSE of Bogenhausen (Munich) may change from S to N and in 10–15 minutes visibility falls from over 10 to under 3 miles. This is associated with an excess of temperature Neubiberg–Munich of about 1.4°C and the development of a thermal circulation which brings Munich smoke over Neubiberg. *Subject Headings:* **1. Visibility 2. Smoke haze 3. Munich, Germany.**—*C.E.P.B.*

3.7–203 551.591.6:551.578.45

Fleming, M. R. (*Moncton*), **Preliminary report on investigation of vertical visibilities in snow.** *Canada. Meteorological Div., Cir.*-1962, June 8, **1951.** 6 p. graphs, refs., equations. **DWB**—Based on data obtained at Moncton Airport, tables and nomograms are worked out to enable the observer or pilot to estimate the vertical visibility more accurately from the horizontal or slant visibility. Sources of error in eye, pilot balloon, pilot report or ceiling light observations are discussed. Vertical visibility in snow is always less than horizontal—author believes this to be due to the manner snowflakes are oriented during their fall. *Subject Headings:* **1. Vertical visibility 2. Snow ceilings 3. Nomograms 4. Moncton, Canada. I. Canada. Meteorological Div.**—*M.R.*

OPTICAL PHENOMENA

(*See also items:* 3.7–53, 3.7–121)

3.7–204 551.593.1:551.524.4

Freiesleben, H. C., **Die Strahlenbrechung in geringer Höhe über Wasseroberflächen.** [Refraction at a small height above water surfaces.] *Deutsche Hydrographische Zeitschrift*, Hamburg, 4(1–2):29–44, **1951.** 10 figs., tables, 6 equations, 7 refs. German, English, French summaries p. 29. **DWB**—Paths of light over water were measured by various methods and accompanying temperatures at different heights. The observations are tabulated; the mathematical discussion shows that the paths are so sensitive that they cannot be computed from measurements of temperature. Mirages and scintillation are related to air-water temperature differences. *Subject Headings:* **1. Refraction of light 2. Vertical temperature gradient.**—*C.E.P.B.*

3.7–205 551.593.1:551.501.42

Willems, Raleigh C., **Low altitude refraction correction.** *Navigation*, Los Angeles, 3(1/2):41–45, Sept./Dec. **1951.** fig., 7 refs. **DLC**—Briefly touching the basic theory of atmospheric refraction, the author describes the revised refraction correction table as used by the U.S.A.F. A table containing values for pressure altitudes up to 70,000 ft and temperatures to minus 100°C is under preparation. Some of the technical problems which arose are mentioned. *Subject Headings:* **1. Atmospheric refraction 2. Refraction correction table.**—*W. N.*

3.7–206 551.593.11 551.5:621.396.826

Illingworth, J., **Abnormal refraction. Gulf of St. Lawrence.** *Marine Observer*, 22(156): 63–64, April **1952.** fig. **DWB**—Inverted image of ship seen by radar and binoculars at 55,800 yards. *Subject Headings:* **1. Mirage 2. Radar observation.**

3.7–207 551.593.5:551.510.42

Chazy, Jean, **Le soleil bleu.** [Blue sun.] *L'Astronomie*, Paris, 65:68, Feb. **1951.** **DLC**—Observations of the author who was traveling from Washington to Baltimore on the 25th of Sept. 1950, remained in Baltimore on the 26th and 27th, from Baltimore to Boston and thence across the Atlantic by plane on Sept. 28. The various aspects of the sun and moon on these days in America, Ireland, England and France are described. *Subject Headings:* **1. Blue sun 2. Smoke pall—Sept. 1950 3. United States 4. North Atlantic 5. Western Europe.**—*M.R.*

3.7–208 551.593.5:551.506.2(44)

Sanson, J. (*Paris*), **Localitiés d'où ont été signalés, le 27 septembre 1950, des "soleil blues" ou des "lunes blues."** [Localities where "blue suns" and "blue moons" were noticed Sept. 27, 1950.] *La Météorologie*, 5th Ser. No. 22:132–134, April–June **1951.** table. French, English and Spanish summaries p. 132. **DWB**—North of a line running from Bayonne to Strasbourg before noon Sept. 27, 1950, and after noon on that day south of that line a blue or blue grey sun was observed at about 30 stations in France and even in North Africa. Details of observations are given for each station, and a tabulation of minimum temperatures which occurred at N and W stations on the 27th and elsewhere on the 28th and 29th. [Probably no relation to blue sun.] *Subject Headings:* **1. Blue sun 2. Blue moon 3. Smoke pall—Sept. 1950 4. France.**—*M.R.*

PART II. SELECTIVE ANNOTATED BIBLIOGRAPHY ON URBAN CLIMATES

By: *Charles Ernest Pelham Brooks*

EXPLANATORY NOTE

This bibliography includes: a) a selection of data on the climates of towns and cities, both the general climate and large scale local difference regarded as due to the general geographical conditions; b) the effects of the towns themselves in modifying their local climate, by the production of heat and aerosols, and by the interruption to the free flow of air; c) the effect of these climatic factors, both natural and artificial, on the design of towns and buildings and, finally, d) the effects of urban conditions on health.

No attempt has been made to cover the whole enormous literature which deals more or less directly with all the various aspects of urban meteorology.

The outline of the contents follows this general scheme.

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1833

3G–1 551.582(410)

Howard, Luke, **Climate of London deduced from meteorological observations.** 3rd ed. London, Harvey and Darton, **1833.** 3 v. figs., numerous tables. **DLC**—The first edition appeared in 1818 and the second in 1820. The third edition contains data to bring the work up to the date of publication. Volume one of this classical work contains a series of treatises on clouds (the famous pioneer treatise on the modification of clouds), winds, evaporation, humidity, dew, rain, atmospheric electricity, periodical variations, whirlwinds, waterspouts, etc. and tables of the various elements observed in London from 1797 to 1831. The places, instruments and conditions under which the observations were made in various parts of London are carefully noted. Effect of the sea, the Thames and other local factors was considered. Volumes 2 and 3 contain logs and data for various periods at suburban stations between 1806 and 1830. There has never been such a carefully analyzed and integrated work on the climate of any city, considering the amount of data that was available. *Subject Headings:* **Climate of London 2. Observational data 3. History of meteorology 4. London, England.**—*M.R.*

1855

3G–2 551.501.1:551.588.7

Renou, E., **Instructions météorologiques.** [Meteorological instructions.] *Société Météorologique de France, Annuaire,* 3:73–160, **1855.** **DLC**—Includes some remarks on difficulties of observing temperatures in towns, and a comparison between 3 hourly values on the Ile St.-Louis and at the Observatory of Paris showing smaller range at latter. *Subject Headings:* **1. Temperature measurement 2. Urban influences 3. Paris, France.**

1862

3G–3 551.524.3:551.588.7

Renou, E., **Différences de température entre Paris et Choisy-le-Roi.** [Temperature differences between Paris and Choisy-le-Roi.] *Société Météorologique de France, Annuaire,* 10:105–109, **1862.** tables. **DLC**—Five years' comparison of temperatures several times a day, and minimum at Observatory of Paris and 9.5 km to S. by E. on bank of Seine showed smaller range in town (minimum 1.2°C higher, noon 0.1°C lower). *Subject Headings:* **1. Temperature distribution 2. Urban influences 3. Paris, France.**

1868

3G–4 551.524.3:551.588.7

Renou, E., **Différences de température entre la ville et la campagne.** [Temperature differences between town and country.] *Société Météorologique de France, Annuaire*, 16:83–97, **1868.** tables. **DLC**—Gives a number of data of temperature differences between Paris (rue Pierre Surrazin) and Choisy-le-Roi to S., showing smaller daily range and fewer days of frost in the town. Value of observations at a window discussed. *Subject Headings:* **1. Temperature distribution 2. Urban influences 3. Paris, France.**

1877

3G–5 551.588.7

Eaton, Henry Storks, **An address delivered by the President.** *Royal Meteorological Society, Quarterly Journal*, 3(22):309–317, **1877. DLC**—After discussing causes of climatic change, gives some calculations of the artificial heating effect of London (including that due to metabolism of population). Estimates that a layer of air 100 ft thick is raised by 2.5°F. Discusses disadvantages of Greenwich as a representative station. *Subject Headings:* **1. Urban influences 2. London, England.**

1885

3G–6 551.524.3:551.588.7

*Hann, Julius von, **Über den Temperaturunterschied zwischen Stadt und Land.** [On the temperature difference between town and country.] *Österreichischen Gesellschaft für Meteorologie, Zeitschrift*, 20:457–462. **1885. DLC**—A comparison of monthly mean temperature difference, town-surrounding country, for a number of places in Europe, also St. Louis and Calcutta, with some discussion of daily variation. Town nearly always warmer than country. *Subject Headings:* **1. Urban influences 2. Temperature distribution 3. St. Louis, Missouri 4. Calcutta, India 5. Europe.**

1888

3G–7 551.575.3:551.510.4

Russell, F. A. R., **Smoke in relation to fog in London.** *Nature*, London, 6:34–36, Nov. 8, **1888.** 2 tables. **DLC.** Reprinted as: **Der Nebel in London und seine Beziehung zum Rauch.** *Meteorologische Zeitschrift*, 6:33–36, **1889. DLC**—Gives fog frequencies for a number of places in Britain, also discusses loss of sunshine in London through fog in winter 1885/86. Loss of life and damage by fog briefly assessed and replacement of coal fires by gas heating recommended as a remedy. *Subject Headings:* **1. Fog frequencies 2. Sunshine 3. Urban influences 4. London, England.**

1890

3G–8 551.588.7(43)

Perlewitz, Paul, **Über den Einfluss der Stadt Berlin auf deren klimatische Verhältnisse.** [The influence of the town of Berlin on its climatic conditions.] *Das Wetter*, 6:97–109, **1890.** 5 tables. **DWB**—Monthly averages at three stations inside Berlin are compared with Blankenburg 10km to N. and Heinersdorf 16km to S. for temperature (7h, 14h, 21h, mean maximum and mean minimum and extremes), showing greater warmth of town (especially higher minima). The town relative humidity is 8% lower than country. *Subject Headings:* **1. Urban influences 2. Berlin, Germany.**

1891

3G–9 551.582(43)

*Hellmann, Gustav, **Das Klima von Berlin. I. Teil. Niederschläge, Gewitter.** [The climate of Berlin. Pt. I. Precipitation, thunder.] *Berlin. (K.) Preussisches Meteorologisches Institut, Abhandlungen*, 1(4):75–113, **1891.** 6 figs., 15 tables. **II. Teil. Lufttemperatur.** [Pt. II. Air temperature.] *Ibid.*, 3(6), **1910.** 108 p. 14 tables, fold. plate. **DLC**—These two memoirs discuss in great detail the long series of observations with monthly values for each year. The tables of rainfall and raindays cover 1728–1739 and 1847–1890, days with snow 1829–42, 1847–90, snow cover 1837–90, thunder 1829–40, 1848–90. There is also much information about rainy periods, snow periods and droughts. The 10 series of monthly temperature tables nearly cover period 1719–1907; daily values are given 1848–1907. There are also 5-day means, % frequencies (1° steps), tables of hot and cold spells, mean and extreme maxima, and minima (range 37 to −25°C; the extremes go back to 1709), tables of ice-days, frost-days and "summer days" (maximum at least 25°C) and a comprehensive table of normals. *Subject Headings:* **1. Urban climates 2. Berlin, Germany.**

3G–10 551.575.3:551.588.7

Russell, W. J., **Town fogs and their effects.** *Nature*, London, 44:10–16, Nov. 5, **1891.** 3 figs., tables. Reprinted as: **Stadtnebel und ihre Wirkungen.** *Meteorologische Zeitschrift*, 9:12–21, **1892. DWB**—Analyzes deposits on roofs in Manchester and London, and compares number of fogs in London with consumption of coal. Fog frequency is compared with temperature (negative correla-

tion) and death rate (positive correlation). Loss of sunshine also discussed. *Subject Headings:* **1. Atmospheric pollution 2. Fog frequencies 3. Sunshine 4. Urban influences 5. Manchester, England 6. London, England.**

1893

3G–11 551.576.2(44)

Angot, Alfred, **La nébulosité á Paris.** [Cloudiness in Paris.] *France. Bureau Central Météorologique, Annales, Pt. I, Mémoires,* 1891:137–144, **1893.** **DWB**—Tabulates and discusses diurnal and annual variation of cloud amount 1873–1890. *Subject Headings:* **1. Cloudiness 2. Urban climates 3. Paris, France.**

3G–12 551.521.16:551.588.7

Glan, J., **Die Durchsichtigkeit der Luft Berlins.** [Transparency of the air of Berlin.] *Meteorologische Zeitschrift,* 10:474–475, **1893.** **DWB**—Short account of some early observations of brightness of sunshine by photometric measurements at two different solar elevations. Calculates that with vertical sun, about 2/5ths of light is absorbed; absorption index 0.588. Daily variation due to domestic smoke also discussed. *Subject Headings:* **1. Urban influence 2. Daylight illumination 3. Berlin, Germany.**

3G–13 551.575.3(410)

Scott, R. H., **Fifteen years' fogs in the British Islands 1876–1890.** *Royal Meteorological Society, Quarterly Journal,* 19:229–233, **1893.** 4 tables. Discussion p. 233–238. **DLC**—Gives mean monthly frequencies for 23 stations including several towns. Discusses increased frequency of fog in London, which is attributed to extensive building, especially in S. W. suburbs. *Subject Headings:* **1. Fog frequencies 2. London, England.**

1895

3G–14 551.588.7

Hann, Julius von, **Die Unterschiede der meteorologischen Elemente in der Stadt Paris und ausserhalb derselben.** [The difference of the meteorological elements in and outside the city of Paris.] *Meteorologische Zeitschrift,* 12:37–38, **1895.** table. **DWB**—Summary of notes by J. JAUBERT, in *Société Météorologique de France, Annuaire,* 1894, giving diurnal variations of differences of pressure, temperature, vapor pressure, relative humidity and cloud amount between Tour St. Jacques in Paris and Parc St. Maur. *Subject Headings:* **1. Urban influences 2. Paris, France. I. Jaubert, J.**

3G–15 551.521.63

Schwab, P. Franz, **Über das photochemische Klima von Kremsmünster.** [On the photochemical climate of Kremsmünster.] *(K.) Akademie der Wissenschaften, Vienna, Math.-Nat. Klasse, Denkschriften,* 64:151–228, **1896.** tables, 10 figs. **DSI**—A remarkable detailed study of the chemical and photochemical effects of daylight and sunlight in a town, with tables of mean values and daily variation. Comparisons are made with other places. A historical summary of photochemical methods of atmospheric investigation since 1843 is included. *Subject Headings:* **1. Insolation 2. Ultraviolet light 3. Kremsmünster, Austria.**

1901

3G–16 551.582(436)

***Hann, Julius von, Meteorologie von Wien nach den Beobachtungen an der K. K. Meteorologischen Central-Anstalt 1852–1900.** [Meteorology of Vienna from observations of the Royal Meteorological Central Institute.] *(K.) Akademie der Wissenschaften, Vienna, Math.-Nat. Klasse, Denkschriften,* 73:1–62, **1901.** numerous tables. **DSI**—Gives extensive data of monthly means, variability and extremes of pressure, temperature (for 125 years and shorter intervals), vapor pressure and relative humidity, evaporation (Wild evaporimeter), cloudiness, sunshine duration, rainfall, snowfall, frequency of thunder, wind velocity and direction. Tables I–XXII in appendix give means and extremes of these elements year by year for each month 1851–1900. For 1851–1920 *see* 3G–99 below. *Subject Headings:* **1. Urban climates 2. Vienna, Austria.**

1902

3G–17 551.524.36:551.588.7

Hammon, W. H., and Duenckel, F. W., **Abstract of a comparison of the minimum temperatures recorded at the U. S. Weather Bureau and the Forest Park Meteorological Observatories St. Louis, Mo., for the year 1891.** *Monthly Weather Review,* 30(1):11–12, Jan. **1902.** table. **DWB**—Forest Park on a knoll is clear of smoke, Weather Bureau station is surrounded by factories. At Weather Bureau station mean daily maximum is 0.6°F higher than at Forest Park, but mean daily minimum

is 4.6°F higher. Difference greatest in calm, clear weather and with snow on ground; it is attributed to smoke pall. Notes that N.W. part of city best for residence, S.E. for industry. *Subject Headings:* **1. Minimum temperatures 2. Urban influences 3. St. Louis, Missouri.**

1903

3G–18 551.575(42)

Carpenter, Alfred, **London fog inquiry, 1901–02.** London, Darling & Son, **1903.** 27 p. 10 plates. **London fogs.** London, **1904.** 48 p. 7 plates. **DLC**—Report of the Meteorological Council upon an inquiry into the occurrence and distribution of fogs in the London area, during the winters of 1901–2 and 1902–3, with reference to forecasts of the incidence and duration of fogs in special localities, to which is appended the report, by R. G. K. Lempfert, on the observations of the winter 1902–3. *Subject Headings:* **1. Fog 2. London, England. I. Great Britain. Meteorological Office. II. Lempfert, R. G. K.**

1904

3G–19 551.506.3(437)

Augustin, Fr., **Der tägliche Gang der meteorologischen Elemente auf der Petřinwarte in Prag.** [The daily variation of the meteorological elements at the Petrin Observatory in Prague.] *Meteorologische Zeitschrift*, 21:113–129, **1904.** numerous tables. **DWB**—The Petřinwarte is a tower 60 m high with a very open exposure. Hourly observations, 1896–1900, were taken in the garden (1.8m) and the gallery (49m) and are compared with the Sternwarte 128 m lower. Diurnal and annual variations shown in tables, analyzed for harmonic components and discussed. *Subject Headings:* **1. Annual variations 2. Meteorological elements 3. Prague, Czechoslovakia.**

1905

3G–20 551.591.2:551.588.7

*Samec, Maximilian, **Durchsichtigkeit der Luft bei verschiedenen Witterungszuständen in Wien.** [Transparency of the atmosphere during different weather conditions in Vienna.] *Akademie der Wissenschaften, Vienna. Math.-Naturw. Klasse, Sitzungsberichte, Abt. 2a*, 114(9):1519–1568, **1905.** 15 figs., map, 17 tables, refs. **DLC**—An arbitrary visibility scale is established by the author for Vienna and mean hourly values of visibility for the year 1904 are presented. The relationship between visibility and barometric pressure, visibility and wind direction, visibility and temperature and humidity, and the effect of cloudiness, morning fog, and precipitation are discussed, and data are given. *Subject Headings:* **1. Visibility distribution 2. Urban influences 3. Vienna, Austria.**

1906

3G–21 551.577.32(437)

Augustin, Fr., **Die Niederschläge in Prag.** [Precipitation in Prague.] *Meteorologische Zeitschrift, Hannband*, **1906.** p. 90–94. 2 tables.—Discussion with tables of annual variation at seven stations in and near Prague reduced to 1851–1900. *Subject Headings:* **1. Precipitation variations 2. Prague, Czechoslovakia.**

3G–22 551.524.3:551.588.7

Mazelle, Eduard, **Temperaturen von Triest nebst einem Beitrag zur Kenntnis des Temperaturunterschiedes Stadt-Land.** [Temperature of Trieste with a contribution to the temperature difference town-country.] *Meteorologische Zeitschrift, Hannband*, **1906.** p. 162–174. numerous tables.—A comparison between new site in a garden at 67.5 m ht., with old site at 25.8 m in middle of town. Journal annual variation of temperature difference tabulated and discussed. Comparisons are then made between mean temperatures at Trieste and in surrounding country. *Subject Headings:* **1. Temperature variations 2. Urban influences 3. Trieste.**

1908

3G–23 551.582(43)

*Behre, Otto, **Das Klima von Berlin. Eine meteorologisch-hygienische Untersuchung.** [The climate of Berlin: a meteorological-hygienic investigation.] Berlin, Otto Salle, **1908.** 158 p. 2 figs., fifty-five tables.—This comprehensive book summarises observations from 1719–1907. The chapter on temperature includes not only means and extremes, "singularities," ice, frost and summer days, and soil temperature, but also a section on urban influence on air temperature. Other chapters discuss humidity, pressure and wind, cloud fog, sunshine, precipitation in general and rain, hail, snow, and thunder, and a section on the hygienic importance of precipitation in cleaning the air and also the importance of parks and woods in modifying the temperature extremes. *Subject Headings:* **1. Urban climates 2. Berlin, Germany.**

3G–24 551.571.2:551.588.7

Kremser, V., **Der Einfluss der Grosstädte auf die Luftfeuchtigkeit.** [The influence of large towns on air humidity.] *Meteorologische Zeitschrift*, 25:206–215, **1908.** tables. **DWB**—For Paris, Vienna, Berlin, Treves, Cologne and Breslau differences of vapor pressure and relative humidity, country minus town, are all positive except in winter, mean differences 2.3–4.4 mm, Hg, and 6%. Annual and diurnal variation discussed. Cause attributed to change of soil moisture by abduction of rainwater. *Subject Headings:* **1. Urban influences 2. Vapor pressure 3. Relative humidity 4. France 5. Austria 6. Germany.**

3G–25 551.510.42

Liefmann, Harry, **Ueber die Rauch- und Russfrage; insbesondere vom gesundheitlichen Standpunkte und eine Methode des Russnachweises in der Luft.** [On the smoke and soot problem, especially from the health point of view, and a method of showing soot in the air.] *Deutsche Vierteljahrsschrift für öffentliche Gesundheitspflege*, 40:282–344, **1908.** **DLC**—*Subject Headings:* **1. Atmospheric pollution.**

1909

3G–26 551.510.42

Friese, Walther, **Beiträge zur Kenntnis des Staubes in der Stadtluft.** [Contributions to knowledge of dust in town air.] Leipzig, (K.) Sächsische Technische Hochschule, Borna, **1909.** 54 p.—Unchecked. *Subject Headings:* **1. Dust 2. Urban influences.**

3G–27 551.552:551.588.7(43)

Kremser, V., **Ergebnisse vieljähriger Windregistrierungen in Berlin.** [Results of many years' wind observations in Berlin.] *Meteorologische Zeitschrift*, 26:259–265, **1909.** 5 tables. **DWB**—Hourly monthly means of wind velocity 1884–1903 on a tower in S.W. of Berlin show effect of buildings around the site in a decrease from above 5 to below 4 m/s. *Subject Headings:* **1. Urban influences 2. Wind velocity 3. Berlin, Germany.**

1910

3G–28 551.5:69

Kassner, Carl, **Die meteorologischen Grundlagen des Städtebaues.** [Meteorological basis for city building.] *Berlin. (K.) Technische Hochschule. Seminar für Städtebau, Städtebauliche Vorträge*, 3(6), **1910.** 26 p. illus., diagrs. **DWB**—Examples from all over the world are cited to illustrate the importance of weather in house design. Precipitation, wind and temperature are among the chief determinants discussed. In closing, the author briefly mentions the influence of cities on weather. *Subject Heading:* **1. Urban climatology.**

1911

3G–29 551.588.7

Mindling, George W., **Influence of artificial heating on the climate of cities.** *Monthly Weather Review*, 39:1280–1283, **1911.** 2 figs., 2 tables. **DWB**—From comparison of changes of temperature 1881–90 to 1891–1900 at New York and New Haven with Setauket author finds that there is no evidence of a local heating effect due to fuel consumption. Also no evidence of change of precipitation. *Subject Headings:* **1. Urban influences 2. United States.**

3G–30 551.524.34:551.588.7

*Palmer, Andrew H., **Is the heat generated by great cities changing their climates.** *Monthly Weather Review*, 39:1284–1286, **1911.** 4 tables. **DWB**—From a study of annual temperatures and precipitations at Boston compared with Blue Hill, 1871-1910, author concludes that "judging from the evidence available the heat generated by great cities is not changing their climates to any appreciable degree." *Subject Headings:* **1. Temperature trends 2. Urban influences 3. Boston, Massachusetts.**

1912

3G–31 551.582(593)

*Highet, H. Campbell, **The climate of Bangkok.** Bangkok, H. E. Minister of Local Government, **1912.** 38 p. 5 charts, 17 tables. Also in: *Natural History Society of Siam, Journal*, 9(2), **1912.** **GBMO, DLC**—Tables and notes based on daily records 1902—11 with descriptions of monsoon and weather month by month and comparison with records 1858–68. Gives mean and extreme temperatures and rainfalls, raindays, black bulb temperatures and means of relative humidity. Charts include a few diurnal temperature curves. *Subject Headings:* **1. Urban climates 2. Bangkok, Siam.**

1913

3G–32 551.582(43)

*Polis, Peter Hermann Johann, **Das Klima Aachens.** [The climate of Aachen.] (In: **Festschrift der Stadt Aachen zur 38 Versammlung des Deutschen Vereins für öffentliche Gesundheitspflege.** [Aachen, 1913?] p. 21–30. fig., 2 tables.)—A straight climatological summary based on data for various periods ending 1912, with detailed climatic averages by months, and mean daily rainfall 1858–1912. *Subject Headings:* **1. Urban climates 2. Aachen, Germany. I. Deutscher Verein für öffentliche Gesundheitspflege.**

1914

3G–33 551.582(773)

Cox, Henry J. and Armington, John H., **The weather and climate of Chicago.** *Geographic Society of Chicago, Bulletin*, No. 4. **1914.** 375 p. 99 figs., 107 tables. **DLC**—This very comprehensive memoir, based on data from 1830 to 1910, includes besides a description of the location and environment, chapters dealing with all conceivable aspects of temperature, including main and secondary controls, precipitation, humidity, cloudiness, sunshine, wind direction and velocity including storms and tornadoes, barometric pressure and storm tracks. Appendices describe weather of New Year's day, Fourth of July and Christmas, comparative data for numerous other cities, and notes on the Chicago fire of Oct. 8–9, 1871. *Subject Headings:* **1. Urban climates 2. Chicago, Illinois.**

3G–34 551.524.1:551.588.7

Schwalbe, G., **Bemerkungen zu den Temperaturbeobachtungen in Berlin und Umgebung.** [Remarks on temperature observations in Berlin and environs.] *Berlin, (K.) Preussisches Meteorologishches Institut, Bericht über die Tätigkeit* im Jahre 1913:(85)–(86), **1914.** tables. **Temperaturbeobachtungen in . . .** *Ibid.*, **1916.** p. (13)–(18), **1917.** 2 tables. **DLC**—The first paper gives monthly mean temperatures at five stations and remarks on differences. The second gives for Jan. 1911–Sept. 1913 monthly means at 7, 14, 21 h, mean, mean maximum and minimum, for seven stations, and values at 7–9 stations on selected days of different weather types. On a calm clear night with snow cover outskirts were up to 9°C colder than center. *Subject Headings:* **1. Temperature microvariations 2. Urban influences 3. Berlin, Germany.**

1915

3G–35 551.572(43)

Glass, Walther Felix, **Die Niederschlagsverhältnisse von Leipzig, Freiberg und Reitzenhain während der fünfzig Jahre 1864 bis 1913.** [The rainfall conditions of Leipzig, Freiberg and Reitzenhain during the 50 years 1864–1913.] Dresden, (K.) Sachsische Landeswetterwarte, **1915.** 64 p. 3 plates, 20+tables.—A detailed summary including daily and five-day means, frequencies of different amounts, extreme values, and data of snow, hail, thunder, droughts, wet spells, etc. *Subject Headings:* **1. Precipitation data 2. Germany.**

3G–36 551.575.3(436)

Thomas, Oswald, **Über die Nebelverhältnisse von Wien.** [On the fog conditions of Vienna.] *Meteorologische Zeitschrift*, 32:501–505, **1915.** 5 figs., tables. **DWB**—A discussion of the fog frequency 1901–10 at different hours and in different months, and in relation to temperature, humidity, wind direction and velocity, and pressure. *Subject Headings:* **1. Fog frequencies 2. Urban influences 3. Vienna, Austria.**

1916

3G–37 551.575.34:551.588.7(497.2)

Kassner, Carl, **Über die Zunahme des Nebels in Sofia und ihre Ursachen.** [On the increase of fog in Sofia and its causes.] *Meteorologische Zeitschrift*, 33:135–138, **1916.** tables. **DWB**—Number of days of fog in winter increased by 27%, 1891–1914. Attributed partly to growth of town and partly to replacement of wood by coal as fuel. *Subject Headings:* **1. Urban influences 2. Fog frequencies 3. Sofia, Bulgaria.**

1917

3G–38 551.524.36

Hellmann, Gustav, **Die wärmsten und die kältesten Tage in Berlin seit 1766.** [The warmest and coldest days in Berlin since 1766.] *Berlin, (K.) Preussisches Meteorologisches Institut, Bericht über die Tätigkeit* im Jahre 1916:(7)–(13), **1917.** 2 tables. **DLC**—From 1766–1915 warmest day 29.6°C Aug. 10, 1802, coldest −24.4° Jan. 29, 1830. Details given for each year, frequency distribution and distribution through year. *Subject Headings:* **1. Temperature extremes 2. Berlin, Germany.**

3G–39 551.578.4:551.588.7

Kassner, Carl, **Der Einfluss Berlins als Grosstadt auf die Schneeverhältnisse.** [The influence of Berlin as a large town on the snow conditions.] *Meteorologische Zeitschrift*, 34:136–137, **1917.** 2 tables. **DWB**—Comparison of frequency of snow, snow and rain, and rain at two stations inside and outside Berlin. Snow is less frequent inside town and is often partly or wholly replaced by rain, owing to higher city temperature. *Subject Headings:* **1. Urban influences 2. Snow frequencies 3. Berlin, Germany.**

3G–40 551.588.7

Schmidt, Wilhelm, **Zum Einfluss grosser Städte auf das Klima.** [On the influence of large towns on climate.] *Naturwissenschaften*, 5(30):494–495, **1917.** 2 refs. **DLC**—Three main influences of large towns on climate are discussed: 1) the pollution of air by dust and combustion products, resulting in an almost permanent overlying dust layer and a tendency towards cloudiness; 2) the lower water vapor content of the air due to the rapid runoff of precipitation and the associated relatively low degree of evaporation; 3) the increase in temperature which is in part related to the absence of the cooling effect of evaporation as well as to the city's effect on radiation and its self-generated heat. *Subject Heading:* **1. Urban influences.**—*M.P.K.*

3G–41 551.524.3:551.588.7

Schwalbe, G., **Temperaturbeobachtungen in Berlin und Umgebung.** [Temperature observations in Berlin and district.] *Berlin. (K.) Preussisches Meteorologisches Institut, Veröffentlichungen*, No. 292:(13)–(18), **1917.** 2 tables. **DLC**—Gives mean monthly temperatures several times a day 1911–13 at seven stations in and near Berlin and comparisons under different meteorological conditions, with brief discussion. On mild stormy days there was no systematic difference, so the differences in quiet weather are real. *Subject Headings:* **1. Temperature variations 2. Urban influences 3. Berlin, Germany.**

1918

3G–42 551.582(437)

Moscheles, J., **Das Klima von Prag.** [The climate of Prague.] *Meteorologische Zeitschrift*, 35:170–181, **1918.** 5 figures. **DWB**—A climatological summary 1841–1910 with the usual monthly tables, and a comparison of Sternwarte (197.2m) with Petřinwarte (325m). Wind roses show variations of elements with different wind directions. *Subject Headings:* **1. Urban climates 2. Prague, Czechoslovakia.**

3G–43 551.574.1:551.88.75

Schmidt, Wilhelm, **Messungen des Staubkerngehalts der Luft am Rande einer Grosstadt.** [Measurements of the dust nuclei content of the air at the margin of a large town.] *Meteorologische Zeitschrift*, 35:281–285, **1918.** tables. **DWB**—Numbers of nuclei per mm^3 in Vienna are tabulated for different wind directions and velocities showing ten times as many in air which has travelled across the town (S.E. winds). Measurements are compared with visibility and ozone content (negative correlation in each case). *Subject Headings:* **1. Urban influences 2. Nuclei count 3. Vienna, Austria.**

1919

3G–44 551.551:551.588.7

Hellmann, Gustav, **Genauigkeit der Windbeobachtungen in Grosstädten.** [Accuracy of wind observations in large towns.] *Berlin. Preussisches Meteorologisches Institut, Veröffentlichungen, Bericht* No. 305:24–29, **1917–1919.** tables. **DLC**—Frequencies of wind directions at three stations in Berlin in recent years are compared and found not to agree at all well. Even in 1775–1787 however, when Berlin was much smaller, the agreement though better was not good. Author considers that the usual wind observations in large towns are of little use. *Subject Headings:* **1. Wind observation 2. Urban influences 3. Berlin, Germany.**

3G–45 551.524.1:551.588.7

Redway, J. W., **Urban versus suburban temperatures.** *Monthly Weather Review*, 47:28–29, **1919.** table. **DWB**—A comparison of maximum, minimum and mean temperatures at Battery Park, (New York City) and Mount Vernon 17 miles N.E. shows that suburbs are warmer by day and cooler by night, difference decreasing with wind speed, cloudiness and moisture content. *Subject Headings:* **1. Urban influences 2. New York, N. Y.**

1920

3G–46 551.582(43)

Wagner, Th., **Das Klima von Jena.** [The climate of Jena.] Diss.—Jena, **1920.** Unchecked—*Subject Headings:* **1. Urban climates 2. Jena, Germany.**

1921

3G–47 551.591.2:551.588.7

Besson, Louis, **La transparence de l'air à Paris.** [The transparency of the air of Paris.] *Paris. Service Technique d'Hygiène, Annales,* 1:267–280, **1921.** tables.—Tabulates monthly frequencies of different visibility distances at 9h, 12h, 15h, and discusses secular decrease of visibility and increase of fog 1895–1919. This is attributed mainly to the great increase in the number of factories during the war, and the increased emission of "asphyxiating" gases "which initiate condensation." There has been some improvement since 1919. *Subject Headings:* **1. Urban influences 2. Visibility 3. Paris, France.**

3G–48 551.582(44)

Lévine, Joseph, **Atlas météorologique de Paris.** [Meteorological atlas of Paris.] Paris, Gauthier-Villars, **1921.** 83 p. 9 pls. Also: **Le climat de Paris.** [Climat of Paris.] *La Nature,* Paris, 49:91–93, 1921. **DLC**—An account of the various instruments in use, extreme temperatures, effects of temperature and wind on the Eiffel Tower, frequencies of various phenomena and physiological effects of ascent and descent of Eiffel Tower. *Subject Headings:* **1. Urban climatology 2. Paris, France.**

3G–49 551.521.12:551.588.7

Roth, H., **Aktinometer und aktinometrische Messungen in Frankfurt a.M., Mai 1920/21, unter besonderer Berücksichtigung des Grosstadtdunstes.** [Actinometer and actinometric measurements in Frankfort a.M., May 1920–21, with special reference to large town haze.] Diss.—Frankfort a.M., 1921. Unchecked.—*Subject Headings:* **1. Actinometric data 2. Urban influences 3. Frankfort a.M., Germany.**

1922

3G–50 551.521.11:551.576.2

Ångström, Anders, **Note on the relation between time of sunshine and cloudiness in Stockholm 1908–1920, with special regard to the turbidity of the atmosphere.** *Arkiv för Matematik, Astronomi och Fysik,* 17(15), **1922.** 7 p. fig., table. **DWB**—Calculates annual values of $\alpha = S(10 - m)/10s$ where S is time sunrise to sunset, m = mean cloudiness and s = duration of sunshine. Values are mostly below 1, except after volcanic eruptions. This is regarded as an index of atmospheric turbidity. *Subject Headings:* **1. Sunshine duration 2. Cloudiness 3. Turbidity 4. Stockholm, Sweden.**

3G–51 551.521.3:551.588.7

Boda, K., and Roth, H., **Der Trübungsgrad der Atmosphäre über Frankfurt a.M. and über dem Taunus Observatorium.** [The degree of atmospheric turbidity over Frankfort a.M. and the Taunus Observatory.] *Meteorologische Zeitschrift,* 39:369–374, **1922.** 2 figures, 7 tables. **DWB**—Turbidity was calculated from radiation measurements and is tabulated hourly by months. The large differences are discussed. *Subject Headings:* **1. Turbidity 2. Urban influences 3. Frankfort a.M., Germany.**

1923

3G–52 551.521.16:551.510.42

*Besson, Louis, **Recherches sur la perte de lumière due aux fumées à Paris et dans les environs.** [Research on the loss of light due to the smoke of Paris and neighborhood.] *Paris. Service Technique d'Hygiène, Annales,* 4:237–254, **1923.** fig., 6 tables. **DGS**—Mean illumination (with Bellani lucimeter) is tabulated at seven stations in and around Paris by wind directions and cloudiness. The loss of light due to smoke of Paris is still about 20%, 10 km down wind. With Wly winds it is even greater here than at edge of town, because at this distance the smoke has provoked cloud formation. *Subject Headings:* **1. Daylight illumination 2. Smoke 3. Paris, France.**

3G–53 551.552:69

*Nunn, Roscoe, **Wind directions and the orientation of schoolhouses.** *Monthly Weather Review,* 51:125–127, **1923.** table. **DWB**—A statement of the prevailing winds in April–June, Sept., Oct. at a number of U. S. cities and some remarks on the placing of windows to get the best ventilation. *Subject Headings:* **1. Building design 2. Winds.**

3G–54 551.552:71

Root, Clarence J., **City planning and the prevailing winds.** *Monthly Weather Review,* 51:309–310, **1923.** **DWB**—Brief remarks on planning zoning of cities so that prevailing winds blow industrial smoke away from residential districts. *Subject Headings:* **1. Wind effects 2. Town planning.**

1924

3G–55 551.510.42:551.575.1

Armington, J. H., **City "smogs" in periods of general fair weather.** *Indiana Academy of Sciences, Proceedings*, 34:67–70, **1924. DWB**—Presence of smog noted in soft-coal burning cities when clear weather prevails in region and explanation of phenomenon attempted. Smog incidence in Indianapolis cited. (*Same item* as No. A–27 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Smog 3. Indianapolis, Indiana.**

3G–56 551.582(45)

*Conti, Gabriella Armellini, **Il clima di Roma. Riassunto delle osservazioni meteorologiche dell'ultimo decennio.** [The climate of Rome. Summary of the meteorological observations of the last decade.] Rome, Tipografia Centeneri, **1924.** Review in: (*R.*) *Società Geografica Italiana, Rome, Bollettino*, Ser. 6, No. 3:80–82, **1926.** table. **DLC**—Gives for each month of each year 1914–1923 means of pressure, mean temperatures and extremes, rain, prevailing wind and thunderstorms. *Subject Headings:* **1. Urban climates 2. Rome, Italy.**

3G–57 551.510.42:613

Forbes, J. Graham, **The atmosphere of the Underground Electric Railways of London. A study of its bacterial content in 1920.** *Journal of Hygiene*, 22(2):123–155, Jan. **1924.** fig., 6 charts, 20 refs. **DLC**—Specimens of air were collected in 1920 from crowded trains, platforms and from the open in London and bacterial cultures prepared from the organisms collected. Bacterial contents of platform, carriage and open air were in ratios 16.4:13.5:10, the high proportion in platform air (52 colonies per 5 litres of air) being attributed to disturbance of dust by draughts. Dust removal is recommended. Figures showed some improvement over 1902, and by 1923 there was further improvement. *Subject Headings:* **1. Aerobiology 2. Underground railways 3. London, England.**

3G–58 551.575.2(45)

*Gabba, L., **La frequenza della nebbia a Milano 1835–1920.** [The frequency of fog in Milan 1835–1920.] *Società Meteorologica Italiana, Bollettino Bimensile*, 43:32–35, **1924.** 2 tables. **DWB**—Table gives number of days with fog for each month in the period 1835 to 1920, the means for 86 years reduced to 30 day months, and % frequency for each month (23% in Dec., 1% April–Aug.). In Jan. 1876 there were 31 days with fog, in Jan. 1905 and 1909 only two. Notes on the conditions under which the observations were taken, the inhomogeneity of record, etc. are included. No rigorous definition of the density of fog or its duration was established before these records were made. *Subject Headings:* **1. Fog frequencies 2. Milan, Italy.**—*M.R.*

3G–59 551.575.1:551.510.42

The high fog in London on January 23rd, 1924. *Meteorological Magazine*, London, 59:69–70, **1924. DLC**—Sky completely black over London from 11 a.m. to 1 p.m., attributed to low stratus contaminated with smoke. *Subject Headings:* **1. Fog formation 2. London, England.**

3G–60 551.5:72

Lloyd, Nathaniel, **Aspects of houses in relation to wind, rainfall and sunshine.** *Royal Institute of British Architects, Journal*, 31:633–644, **1924.** figs., table. **DLC**—A discussion of best aspect for living rooms of a house in Richmond, Falmouth, Aberdeen and Valentia (Eire) taking account of amount of rainfall with winds of different directions, and hourly duration of sunshine at different seasons. In Britain a S.E. aspect is favored. *Subject Headings:* **1. Building design 2. Rain 3. British Isles.**

3G–61 551.552(44)

*Paris. Service Technique d'Hygiène, **Le régime des vents à Paris d'après cinquante années d'observations.** [The wind regime in Paris from 50 years' observations.] *Paris. Service Technique d'Hygiène, Annales*, 6:239–278, **1924.** 5 figs., 13 tables. **DGS**—Summarizes mean frequency of directions at Montsouris 1873–1922 by months, frequencies of different air masses, the associated weather types and their pluvial characteristics. *Subject Headings:* **1. Wind data 2. Paris, France.**

3G–62 551.582(436)

*Topolansky, Moritz, **Der Geltungsbereich klimatologischer Stationen.** [The representative area of climatological stations.] *Zeitschrift für angewandte Meteorologie*, 41:125–128, **1924.** table. **DLC**—A comparison of monthly temperature, weather and winds at Hohe Warte (Vienna) and Klosterneuburg, showing appreciable differences in spite of their proximity. *Subject Headings:* **1. Urban climates 2. Vienna, Austria.**

1925

3G–63 551.582(411)

*Becker, L., **The climatology of Glasgow.** *Great Britain. Meteorological Office, Geophysical Memoirs*, 3(23):49–144, 1925. 5 plates, 75 tables. **MH-BH**—A complete description of the station, instruments, and reduction of observations. Tables give monthly and hourly means since 1868, of pressure, temperature, humidity, rainfall, sunshine (1881–1920), cloud amount, black bulb temperature, grass minimum, visibility, wind direction and velocity, also 5-day means of several elements and numerous frequency tables. *Subject Headings:* **1. Urban climates 2. Glasgow, Scotland.**

3G–64 551.510.42

Cohen, Julius B. and Ruston, Arthur G., **Smoke. A study of town air.** 2nd ed. London, Arnold & Co., **1925.** 108 p. 16 figs., 14 plates, tables.—A later edition of COHEN's book published as: *Smithsonian Miscellaneous Collections*, No. 1073, 1896. The effects of soot in and to leeward of towns, with special reference to Leeds, are summarized. Opens with composition of soot and amount issued from chimneys, amount of solid impurities in the air and daily sootfall. Damage to buildings and plants by soot is discussed quantitatively. Influence of smoke on intensity of light is shown by observations at seven stations. Gaseous impurities are discussed under sulphur acids, effects of sulphuric acid on masonry, metal work and vegetation, and effects of chlorides and arsenic. Nature and composition of town fog is examined (number of particles per cu. in. at Leeds, CO_2 in London fog, SO_2 at Manchester, etc.). Finally, effect on vegetation is discussed in greater detail. (*Same item* as No. A-14 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Urban influences 3. Carbon dioxide distribution.**

3G–65 551.510.42:616.2

†Greenburg, Leonard, **Studies on the industrial dust problem. I Dust inhalation and its relation to industrial tuberculosis. II. A review of the methods used for sampling aerial dust.** *U. S. Public Health Service, Public Health Reports*, 40:291–309, 765–786, 1591–1603, **1925.** 10 tables, 119 refs. **DLC**—The first part deals with mortality from tuberculosis in various trades and the pathology of dust inhalation. The second part describes the Aitken koniscope and dust counter, Owens jet dust counter, filtration methods, filter paper thimbles, methods involving washing, sedimentation, impinging, electrostatic methods, etc. Useful bibliography. *Subject Headings:* **1. Dust 2. Public health.**

3G–66 551.510.42:551.588.7

Owens, John Switzer, **Modern atmospheric conditions, with special reference to London.** *Royal Society of Arts, Journal*, 73:434–453, **1925.** 3 figs., 3 tables. Discussion p. 453–457. **DLC**—Opens with a history of the increasing pollution from coal fires, and history of investigation of atmospheric pollution. Results of recent instrumental researches are summarized, especially with reference to London fogs and effect of sulphur compounds in surrounding country. *Subject Headings:* **1. Atmospheric pollution 2. Urban influences 3. London, England.**

3G–67 551.521.11:551.515(42)

Sawyer, L. Doris, **The effect of pressure distribution upon London's sunshine in winter.** *Royal Meteorological Society, Quarterly Journal*, 51:121–129, **1925.** fig., 4 tables. **DLC**—Average amounts of sunshine in London Nov.–Feb. are compared with rural station of S. Farnborough for nine different synoptic types. The effect of wind direction on distribution of sunshine in London is also shown. *Subject Headings:* **1. Sunshine 2. London, England.**

3G–68 551.510.42(02)

Shaw, Sir William Napier and Owens, John Switzer, **The smoke problem of great cities.** London, Constable & Co., **1925.** 301 p. illus. **DWB**—A comprehensive book on the subject. Discusses historical and geographical aspects, natural ventilation of cities and its failures, meteorological factors of all sorts, nature and origin of smoke, economic aspects, measurement and study, particle counting, etc. (*Same abstract* as No. A-37 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Great Britain.**

1926

3G–69 551.521.11:69

Benndorf, Hans and Prausnitz, Wilhelm, **Apparat zur Demonstration der Verteilung von Licht und Schatten bei Beleuchtung von Gebäuden durch die Sonne.** [Apparatus to demonstrate the distribution of light and shade during the sunlighting of buildings.] *Archiv für Hygiene und Bakteriologie*, Munich, 66:384–389, **[1926].** 3 figs., table. **DLC**—Describes an apparatus in which a lamp can be set at any angle by graduated scales, to represent the hour angle and elevation of the sun. This is placed in position in a scale model of the neighbourhood. *Subject Heading:* **1. Illumination.**

3G–70 551.575.3

Gassies, —, **Le brouillard à Lyon (Bron). (Annèes 1921–1922–1923–1924–1925.)** [Fog at Lyons (Bron).] *La Météorologie*, 17:426–431, **1926.** 2 figs., 7 tables. **DWB**—Fog is defined as visibility near the ground of 1500 m or less. Hourly and monthly frequencies tabulated and relations to wind direction shown. Effect of town not discussed. *Subject Headings:* **1. Fog frequencies 2. Lyons, France.**

3G–71 551.575.5:551.510.42

Hand, Irving F., **A study of the smoke cloud over Washington, D. C. on January 16, 1926.** *Monthly Weather Review*, 54:19–20, **1926.** fig., 2 refs. **DWB**—Results of dust counter and radiation records on occasion of a dense city smoke fog. Attributed to increased domestic coal consumption because of cold weather. *Subject Headings:* **1. Smoke 2. Washington, D. C.**

3G–72 551.553.1

*Henze, H., **Zur täglichen Periode der Windgeschwindigkeit in Berlin.** [On the diurnal period of wind velocity in Berlin.] *Meteorologische Zeitschrift*, 43:281–288, **1926.** 3 figs., tables. **DWB**—A comparison of mean wind velocity and daily variation at Berlin, Spandau, Potsdam, etc.; buildings increase the convection and therefore the daily range. *Subject Headings:* **1. Wind variations 2. Urban influences 3. Berlin, Germany.**

1927

3G–73 551.524.1:551.588.7

*Besson, Louis, **Les différences locales de température à Paris et dans les environs.** [Local differences in the temperature in Paris and its surroundings.] *Paris. Service Technique d'Hygiène, Annales*, 8:261–289, **1927.** 5 figs., 5 tables.—Gives winter and summer mean minima at 38 stations in and around Paris. The annual means are 0.8 to 2.3°C higher over the town than in surrounding districts. Effect of altitude and of wind direction is also discussed; fig. 3 (direction of wind showing the greatest relative excess of temperature) shows clearly the spread of urban influence over the country. Cold due to radiation is distinguished from advection cold. Secular variation also discussed. *Subject Headings:* **1. Urban influences 2. Temperature distribution 3. Paris, France.**

3G–74 551.575.5

Fairgrieve, J., **London fog, January 20th, 1927.** *Meteorological Magazine*, London, 62:29–31, **1927.** fig. **DLC**—Includes a map showing the distribution of fog at 9 h and hourly isochrones of its progress southwards across London until 16 h. *Subject Headings:* **1. Fog 2. London, England.**

3G–75 551.510.4:551.588.7

Florentin, Daniel, **Sur la composition de l'air des rues de Paris.** [On the composition of the air in the streets of Paris.] *Académie des Sciences, Paris, Comptes Rendus*, 185:1538–1541, **1927.** table. **DLC**—Describes investigations in Paris to determine amount of CO_2 and CO in the air. CO_2 ranged from 0.34 to 0.62 litres per m^3, CO from below 0.01 to 0.045. Observations are related to weather. Pollution in the streets decreases rapidly with height; at 3rd storey values are always negligible. Pollution decreases outwards from center. *Subject Headings:* **1. Atmospheric pollution 2. Urban influences 3. Paris, France.**

3G–76 551.577.53

Schmauss, August, **Grosstädte und Niederschlag.** [Large towns and precipitation.] *Meteorologische Zeitschrift*, 44:339–341, **1927.** 4 tables. **DWB**—The frequency of reports of heavy rain at Munich, Augsburg and Nuremberg compared with surrounding country suggests that it may not merely result from greater density of station network. Author investigates this statistically and finds that there is a real tendency both for an excess frequency of heavy rains (attributed to forced ascent of air caused by friction) and also an increased frequency of light rains (up to 5 mm) due to greater number of condensation nuclei. *Subject Headings:* **1. Urban influences 2. Precipitation 3. Munich, Germany 4. Augsburg, Germany 5. Nuremberg, Germany.**

3G–77 551.524.37:551.584.5

Schmidt, Wilhelm, **Die Verteilung der Minimumtemperaturen in der Frostnacht des 12. Mai 1927 im Gemeindegebiet von Wien.** [Distribution of minimum temperatures during the frost night of May 12, 1927, within the communal limits of Vienna.] *Fortschritte der Landwirtschaft*, 2(21):681–686, **1927.** 2 figs. **DLC**—The temperature was measured by means of a mercury thermometer attached to an automobile 1.2 m above the ground and 20 cm from the side. In order to achieve comparable observations the trip was made during three hours before sunrise when the hourly change in temperature is 0.1° to 0.2°C. Sketches of the topography of the area covered and

isotherms for the night of May 12, 1927, 0430 h are given. The relationships of minimum temperature to topography, and its significance to agriculture are discussed. *Subject Headings:* **1. Microclimatology 2. Temperature microvariations 3. Urban influences 4. Vienna, Austria.**—*L. L. D.*

3G–78 551.524.2:551.588.7

*Treibich, A., **Über die Verschiedenheit der Lufttemperaturen im Innern der Städte und in ihrer freien Umgebung.** [On the difference of air temperature in the interior of a town and in its open environs.] *Meteorologische Zeitschrift*, 44:341–347, **1927.** 7 tables. **DWB**—A comparison of Berlin University Gardens and Hospital at Dahlem in different types of weather. Author concludes that a typical urban site is difficult to find and advocates a small open space with some trees. *Subject Headings:* **1. Urban influences 2. Temperature measurement 3. Berlin, Germany.**

1928

3G–79 551.591.2:551.510.42(44)

*Besson, Louis, **Sur la visibilité et la teneur de l'air en poussières à Paris.** [On the visibility and dust content of the air in Paris.] *Académie des Sciences, Paris, Comptes Rendus*, 186:882–885, **1928.** table. **DLC**—After 1915 visibility in Paris deteriorated. Illustrated by comparing visibility 1876–1903 with 1919–1926 for different relative humidities, hours and seasons. Visibility decreases with increasing humidity. *Subject Headings:* **1. Visibility 2. Dust 3. Paris, France.**

3G–80 551.524.34:551.588.7

*Bogolepow, M. A., **Über des Klima von Moskau.** [On the climate of Moscow.] *Meteorologische Zeitschrift*, 45:152–154, **1928.** table. **DWB**—Consideration of annual means in center of town, 1910–1926, shows a gradual rise of temperature which is not shared by agricultural academy. From 1854–1920 mean increased from 3.75 to 4.56°C. *Subject Headings:* **1. Temperature trends 2. Urban influences 3. Moscow, U.S.S.R.**

3G–81 551.524.2:551.571.2

*Eredia, Filippo, **I climogrammi d'Italia.** [Climagrams of Italy.] *Accademia Nazionale dei Lincei, Rome, Atti*, 81:332–337, April **1928.** 12 figs., 2 tables. **DLC**—Plots of monthly mean temperature against humidity for twelve cities in Italy. *Subject Headings:* **1. Climagrams 2. Italy.**

3G–82 551.577.2:551.588.7(43)

*Mey, A., **25 jährige Niederschlagsmessungen an verschiedenen Stellen Bremens.** [25 years' rainfall measurements in different parts of Bremen.] *Zeitschrift für angewandte Meteorologie*, 45:289–295, **1928.** 3 tables. **DLC**—Discussion of relations of annual values 1896–1920 at four stations in or near Bremen showing marked differences. The relatively high values at Bürgerpark, 2 km N. of Market Place, are attributed partly to blocking effect of houses, but partly to tree-girt exposure. At Borgfeld 10 km N. of Market Place this effect has disappeared. *Subject Headings:* **1. Rainfall amount 2. Urban influences 3. Bremen, Germany.**

1929

3G–83 551.510.42:551.509.67

*Ashworth, James Reginald, **The influence of smoke and hot gases from factory chimneys on rainfall.** *Royal Meteorological Society, Quarterly Journal*, 55:341–350, **1929.** 3 figs., 4 tables. Discussion p. 348–350. **DLC**—A statistical investigation of the amount of frequency of rain on each day of the week at Rochdale, showing a deficiency of 6% on Sunday (fires damped down, less sootfall). Day rainfall is greater than night rainfall on weekdays, but less on Sundays, especially in winter; rate of rainfall is least on Sundays. (*Same item* as A–28 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Artificial precipitation 2. Atmospheric pollution 3. Smoke 4. Rochdale, England.**

3G–84 551.521:551.588.7

*Besson, Louis, **L'influence de Paris sur la radiation reçue du soleil et du ciel dans la région environnante.** [The influence of Paris on the radiation received from the sun and sky in the surrounding region.] *Paris. Service Technique d'Hygiène, Annales*, 10:184–195, **1929.** fig., 7 tables. —Sunshine duration at Tour St. Jacques (central Paris) is compared with that at Parc St. Maur 12 km to E.S.E. for different wind directions (St. Jacques up to 1 h a day less with NEly winds, up to 0.4 h more with Wly winds). Illumination at a number of stations with different winds is discussed showing loss of light downwind. *Subject Headings:* **1. Urban influences 2. Solar radiation 3. Paris, France.**

3G–85 551.521:551.510.42

*Büttner, Konrad, **Der Einfluss des Grosstadtdunstes auf die Sonnen- und Himmelsstrahlung.** [The influence of large town haze on solar and sky radiation.] *Meteorologische Zeitschrift*, 46:521–525, **1929.** 2 figs., 2 tables. **DWB**—Identical measurements inside Berlin and at Potsdam in summer show that dust and smoke reduce intensity of direct radiation of all wave lengths including UV by about 20% while the diffuse sky radiation is nearly the same. On overcast days there is no difference in UV radiation. Data for Brandenburger Haus, 3300 m, are given for comparison. *Subject Headings:* **1. Urban influences 2. Radiation measurements 3. Smoke haze 4. Berlin, Germany 5. Potsdam, Germany.**

3G–86 551.510.42:551.521.63

Büttner, Konrad and Sutter, Erika, **Der Einfluss des Grosstadtdunstes auf das Strahlungsklima insbesondere im Ultraviolett.** [The effect of smoke from big cities on isolation, particularly in regard to ultraviolet.] *Naturwissenschaften*, 17(33):652, **1929. DLC**—The widespread opinion that the insolation reaching a big city is especially lacking in physiologically important ultraviolet rays was not supported by experiments conducted simultaneously in Berlin and Potsdam, 1929. *Subject Headings:* **1. Smoke 2. Ultraviolet radiation 3. Berlin, Germany 4. Potsdam, Germany.**—*M.P.K.*

3G–87 551.521.31

Grundmann, Walter, **Strahlungsmessungen in Breslau im Jahre 1928.** [Radiation measurements in Breslau in 1928.] *Zeitschrift für angewandte Meteorologie*, 45:289–299, **1929.** 11 figs., table. **DLC**—Discussion of actinometer observations with red, green and blue filters at Krietern 6 km S.S.W. of center of Breslau and comparison with city of Breslau to show loss of radiation due to smoke and its variation with wave-length, time of day and origin of air. Town air being drier passes more long wave radiation but in some wave lengths this is compensated by higher content of CO_2, dust and soot. Effect of air mass type is shown in a table. *Subject Headings:* **1. Solar radiation 2. Urban influences 3. Breslau, Germany.**

3G–88 551.524.1(43)

Peppler, Albert, **Das Auto als Hilfsmittel der meteorologischen Forschung.** [The auto as an aid to meteorological investigation.] *Zeitschrift für angewandte Meteorologie*, 46:305–308, **1929.** 2 figs. **Zur Temperatur der Grosstädte an heissen Sommertagen.** [On the temperature of a large town on hot summer days.] *Ibid.*, 50:230–233, **1933.** fig. **DWB**—The first paper describes briefly results of automobile journeys with an Assmann aspirated thermometer through Karlsruhe and the Rhine plain. The second plots hourly temperature differences between Karlsruhe (thermograph on a roof in city), Durlach to W.S.W. and Rüppurr Garden City on hot August days, showing especially how the city retains heat at night. *Subject Headings:* **1. Temperature microvariations 2. Urban influences 3. Karlsruhe, Germany.**

3G–89 551.524.1(43):551.588.7

Peppler, Albert, **Die Temperaturverhältnisse von Karlsruhe an heissen Sommertagen.** [Temperature conditions in Karlsruhe on hot summer days.] *Deutsches Meteorologisches Jahrbuch, Baden*, 61:59–60, **1929.** 2 figs., 2 refs. **DWB**—Author advocates use of an automobile as a quick-moving observation station for detailed, small-scale meteorological studies. Figures show the results of temperature measurements made while moving along N–S and E–W cross sections through the city at noon and in the evening. Meteorological explanations for the results are advanced. *Subject Headings:* **1. Urban climates 2. Temperature microvariations 3. Karlsruhe, Germany.**—*M.P.K.*

3G–90 551.582(43)

*Perlewitz, P., **Das Klima von Hamburg.** [The climate of Hamburg.] Hamburg, **1929.** 16 p. 30 tables, figs. Summary in: **Klima und Klimatafeln von Hamburg.** *Zeitschrift für Geophysik*, 4:374–376, **1928. DWB**—A detailed summary of the climate and weather of Hamburg based on data since 1830. *Subject Headings:* **1. Urban climatology 2. Hamburg, Germany.**

3G–91 551.510.42:551.55:71

Rempp, G., **L'emplacement futur de l'industrie à Strasbourg considéré au point de vue du régime du vent.** [The future location of industry in Strasbourg considered from the point of view of the wind regime.] *Strasbourg. Université. Institut de Physique du Globe, Météorologie, Annales*, Pt. 1:100–101, 1928 (**1929**). **DLC, DWB**—Compares winds at Strasbourg (NNE and SSW) and neighbouring Toussaint on a hill (mainly SW), and location of industry, discussed in relation to wind frequency and also turbulence, including difference between day and night. He finds that

winds from E to ESE are most frequent during afternoon when smoke is soon dissipated and rare at night when smoke drifts. *Subject Headings:* **1. Town planning 2. Strasbourg, France.**

3G–92 551.582(54)

*Sohoni, V. V., **Meteorological normals of Calcutta.** *Asiatic Society of Bengal, Journal and Proceedings*, 25:237–283, **1929.** 5 figs., plate, 21 tables. **DLC**—Quotes BLANFORD'S description of climate of Calcutta. Then discusses the instruments and methods of observation of the various elements and quotes some abnormal records. Monthly tables for Alipore Observatory include: hourly pressure, 1898–1917; hourly dry and wet temperature and relative humidity and vapour pressure, 1901–1920; daily maximum and minimum, wet bulb minimum, grass minimum; ground temperatures 1890–1904 at surface, 1, 3, and 6 ft; hourly rainfall 1905–1924; cloud forms and amount, hourly bright sunshine 1889–1908, hourly wind velocity and direction 1901–20, and upper air winds. Plate gives typical anemograms. *Subject Headings:* **1. Urban climates 2. Calcutta, India.**

1930

3G–93 551.524.34:551.510.42

Clowes, E. S., **Smoke influence on New York City temperatures.** *American Meteorological Society, Bulletin*, 11:104–105, **1930**; 14:31–32, **1933. MH-BH**—Mean winter temperatures in New York rose from 1900–1930, during introduction of soft coal. Daily minima were 3°F lower on Sundays than other days in 1928–1930, but the difference was less in 1930–32 because of industrial depression. *Subject Headings:* **1. Temperature trends 2. Smoke 3. New York, New York.**

3G–94 551.524.36:551.510.42

Disterdick, F. L., **City smoke and heat effects on minimum temperatures.** *Monthly Weather Review*, 58:330–331, **1930. DWB.** Summary in: *American Meteorological Society, Bulletin*, 11:36–37, **1930. MH-BH**—On clear, calm nights minimum temperature on a roof in Des Moines, 84 ft above street, is 5–17°F higher than in surrounding country. On Sunday and Monday mornings, when there is less smoke, difference is less. Similar differences are found in other cities. *Subject Headings:* **1. Minimum temperatures 2. Smoke 3. Des Moines, Iowa.**

3G–95 551.521.16:551.510.42

Ives, James Edmund, **Studies in illumination; III. A study of the loss of light due to smoke on Manhattan Island, N. Y., during the year 1927, especially in relation to the nature of the weather, the relative humidity of the air, and the velocity of the wind.** *U. S. Public Health Service, Public Health Bulletin*, No. 197, June **1930.** 40 p. 21 figs., 24 refs. **DLC**—(*Same item* as A–55 in Jan. 1950 *Meteorological Abstracts*). *Subject Headings:* **1. Atmospheric pollution 2. Weather conditions 3. Light 4. New York, New York.**

3G–96 551.588.7

Geiger, Rudolf, **Mikroklima und Pflanzenklima. 2. Einwirkungen der Stadt.** [Microclimate and vegetation climate. 2. City influence.] (In: Köppen, Wladimir and Geiger, Rudolf, **Handbuch der Klimatologie.** v. I. **Allgemeine Klimalehre.** Teil D. Berlin, **1930.** p. 33–36, 4 figs.) **DLC**—This is a summary of the work on minimum temperatures by W. SCHMIDT in Vienna, A. PEPPLER in Karlsruhe and A. SCHMAUSS in Munich. *Subject Headings:* **1. Urban influences 2. Karlsruhe, Germany 3. Munich, Germany 4. Vienna, Austria.**

3G–97 551.524.37:551.584.3(436)

*Schmidt, Wilhelm, **Kleinklimatische Aufnahmen durch Temperaturfahrten.** [Microclimatic observations by temperature-measuring trips.] *Meteorologische Zeitschrift*, 47:92–106, **1930.** 4 figs., tables. **DWB**—Observations were made at night and early morning on thermometers carried by car through and around Vienna, May 1927–1928, to investigate late frosts. The results are shown in tables and graphs, including vertical temperature distribution in hilly district (200–500m ht.). *Subject Headings:* **1. Temperature microvariations 2. Frost 3. Vienna, Austria.**

3G–98 551.553(43)

*Stöbe, W., **Ergebnisse 10-jähriger stündlicher Windbeobachtungen zu Nürnberg (1921–1930).** [Results of 10-year hourly wind observations at Nuremberg.] *Deutsches Meteorologisches Jahrbuch, Bayern*, **1930.** p. F.1–4. 4 figs., tables. **DWB**—Shows by tables, wind-roses, etc. annual and diurnal variation. Discussion does not relate variations to urban influences. *Subject Headings:* **1. Wind frequencies 2. Nuremberg, Germany.**

3G–99 551.582(436)

*Wagner, Arthur, **Klimatographie von Österreich X. Der jährliche Gang der meteorologischen Elemente in Wien 1851–1920.** [The annual variation of meteorological elements in Vienna 1851–

1920.] *Austria. Zentralanstalt für Meteorologie und Geodynamik, Publikation* No. 134, **1930.** 88 p. 41+tables.—Gives monthly means and extremes 1851–1920 and for decades, of pressure, air temperature, humidity, evaporation, sunshine, cloud, fog, precipitation, snow, thunder, wind speed. The appendix tables give values and departures from normal for each month. *Subject Headings:* **1. Urban climates 2. Vienna, Austria.**

1931

3G–100 551.588.7(44)

*Besson, Louis, **L'altération du climat d'une grande ville.** [Change of climate of a large town.] *Annales d'Hygiène Publique, Industrielle et Sociale*, Paris, 9(8):1–34, Aug. **1931.** 10 figs., 3 tables. **DLC**—A detailed study with maps and tables, of the distribution of climatic elements around Paris. Includes mean temperature (showing also effect of raindays), mean annual minimum temperature (nearly 2°C higher in town than country), effect of wind showing how heating is displaced down wind, effect of cloud. Differences of humidity show drying effect of town. The city smoke is clearly shown by differences of visibility and frequency of fogs; there has been a progressive change for the worse since 1904. Effect of humidity and wind direction on visibility is discussed. There has been an increase of cloud and a decrease of sunshine and incoming radiation and illumination. There is a convective effect leading to a slight convergence of wind on the city. No effect on rainfall can be shown. *Subject Headings:* **1. Climate 2. Urban influences 3. Paris, France.**

3G–101 551.515.41:551.588.7

Geiger, Rudolf, **Grosstadt und Wolkenbildung.** [Large town and cloud formation.] *Meteorologische Zeitschrift*, 48:439–440, **1931.** fig. **DWB**—Describes a very good example of a thunderstorm over Munich, Sept. 8, 1931, attributed to upward current caused by the town (*see* 3G–76 above). *Subject Headings:* **1. Urban influences 2. Thunderstorms 3. Munich, Germany.**

3G–102 551.586:612:551.588.7

*Lauscher, Friedrich, **Beobachtungen über Abkühlungsgrösse und Windschutz an der Zentralanstalt für Meteorologie in Wien.** [Observations on cooling power and wind protection in the Central Meteorological Institute of Vienna.] *Austria, Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch* 1928, *Beiheft*, **1931.** p. 67–83. 5 figs., 8 tables. *Publikation* No. 137. **DLC**—After setting out purpose of observations, results of Hill katathermometer observations in sun and shade are described according to time of day and season. Author then gives hourly means of air temperature, wind velocity and cooling power. Hill's formula was found to be very accurately verified. A number of direct measurements are quoted. Author then discusses cooling in sheltered places in and around buildings and the effect of protection from wind. *Subject Headings:* **1. Cooling power 2. Urban influences 3. Vienna, Austria.**

3G–103 551.593.53:551.588.7

*Lettau, Heinz, **Über den meteorologischen Einfluss der Grosstadt.** [On the meteorological influence of the large town.] *Zeitschrift für angewandte Meteorologie*, 48:263–273, **1931.** 3 figs., 4 tables, 9 refs. **DWB**—An investigation of the discoloration of the sky in Königsberg owing to increased convection from the artificial surface. Measurements of blue of sky by Linke-Ostwald scale were made at 23 places in and around city on Oct. 17, 1930 and isopleths drawn; a scale for conversion to haziness and to total radiation is added. Values are compared with wind direction and force. *Subject Headings:* **1. Urban influences 2. Sky light color 3. Königsberg, Germany.**

3G–104 551.510.42:551.588.7

Lettau, Heinz, **Die Wirksamkeit einer Grosstadt als Quelle von Luftverschmutzung.** [The effectiveness of a large town as a source of atmospheric pollution.] *Beiträge zur Geophysik*, 31:387–397, **1931.** 2 figs., equations, 5 refs. German and English summaries, p. 387. **DLC**—The theory of turbulence is applied to the problem of the atmospheric pollution of Königsberg (300,000 inhabitants), based on determinations of the blueness of the sky on an October day. The number of dust particles set free on that day is estimated as 10^{18} (23–230 particles per cm^2/sec). (*Same item* as A–57 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Turbulent diffusion 3. Urban influences 4. Königsberg, Germany.**

3G–105 551.524.31:551.588.7

*Mey, A., **Vergleich der Temperaturen innerhalb und ausserhalb der Stadt Bremen.** [Comparison of temperatures inside and outside Bremen.] *Bremen, Deutsches Meteorologisches Jahrbuch*, 42:30–31, **1931.** fig., 2 tables. **DWB**—Hourly temperature differences in Harbour (town)—Airport (5 km to S.) are compared. Screen minima in town are generally higher (on 328 nights compared with 37). Difference of grass minima is greater. Some specimen thermograph records are compared. *Subject Headings:* **1. Temperature 2. Urban influences 3. Bremen, Germany.**

3G–106 551.524.36:551.588.7

Molly, —, **Luftverunreinigung als Wärmeschutz.** [Atmospheric impurity as a heat conserver.] *Zeitschrift für angewandte Meteorologie*, 48:368–372, **1931.** fig. **DWB**—The chart of minimum temperature on night of Sept. 24, 1931, shows a great bay above 0°C around and to S.E. of Essen and Dortmund, in a region of radiation frost. This is attributed to smoke from the industrial region. *Subject Headings:* **1. Urban influences 2. Minimum temperatures 3. Western Germany.**

3G–107 551.521.12 551.524.1

Steinhauser, Ferdinand, **Beobachtungen zum Städteklima.** [Observations on town climate.] *Meteorologische Zeitschrift*, 48:491–493, **1931.** fig. **DWB**—Describes temperature- and radiation-measuring journeys through Vienna, and parallel measurements of solar radiation in Vienna and 15 km to west in 1931. *Subject Headings:* **1. Urban influences 2. Temperature microvariations 3. Radiation measurements 4. Vienna, Austria.**

3G–108 551.5:36(52)

Terada, T. and Utigasaki, T., **Physical investigations of conflagrations in Tokyo.** *Tokyo. Institute of Physical and Chemical Research, Scientific Papers*, 16(312):69–90, **1931.** 10 figs., 2 tables. **DLC**—Frequency of small and large fires mapped over 3 years, isolines drawn and causes discussed. After considering relation to density of population, meteorological factors are investigated. Fires most frequent with humidity of day and preceding day around 50–60%, decreasing with lower as well as higher values. Relations to precipitation obscure but fires fewest with heavy rain and high humidity. Wind not considered. *Subject Headings:* **1. Fire weather 2. Tokyo, Japan.**

1932

3G–109 551.575.5

Allix, André, **À propos des brouillards lyonnais. 4. Le brouillard mortel de Liège et les risques pour Lyon.** [Concerning fogs at Lyons. 4. The lethal fog at Liege and the risks for Lyons.] *Études Rhodaniennes*, Lyons, 8:133–144, **1932.** 4 figs. **DGS**—Includes a full description of the fatal fog in the Meuse valley Dec. 1–5, 1930, and concludes that a similar catastrophe is possible at Lyons. *Subject Headings:* **1. Fog 2. Lyons, France.**

3G–110 551.582(485)

*Ångström, Anders, **Some characteristics of the climate of Stockholm.** *Geografiska Annaler*, 14(1/4):165–196, **1932.** 17 figs., 9 tables, 21 refs. **DLC**—Using records since 1908, author discusses daily variation of temperature, annual variation in relation to radiation income, frequency curves of temperature in each month, daily variation of precipitation and relative humidity and frequency tables of humidity, daily and annual variation of wind velocity and frequencies according to direction, and annual variation of sunshine. The references cover many earlier works on the subject. *Subject Headings:* **1. Urban climates 2. Stockholm, Sweden.**

3G–111 551.524.1

Grunow, Johannes, **Temperaturmessfahrt in Berlin am 12. August 1932.** [Temperature-measuring journey in Berlin.] *Meteorologische Zeitschrift*, 49:481, **1932. DWB**—Describes a journey from 18 km SSW of Berlin into center. Temperatures are quoted. *Subject Headings:* **1. Urban influences 2. Temperature microvariations 3. Berlin, Germany.**

3G–112 551.521.3:551.588.7

*Lauscher, Friedrich and Steinhauser, Ferdinand, **Strahlungsuntersuchungen in Wien und Umgebung.** [Radiation investigations in Vienna and neighbourhood.] *Akademie der Wissenschaften, Vienna, Math.-Naturw. Klasse, Sitzungsberichte*, Abt. 2a, 141:15–320, **1932.** 6 figs., 6 tables. **Weitere** [Further] **Strahlungsuntersuchungen. . . .** *Ibid*, Abt. 2a, 143:175–196, **1934.** 3 figs., 9 tables. **DLC**—Measurements of radiation intensity and obscuration factor were made at a number of points in and around Vienna. Differences of obscuration are a convenient method of characterising the effects. Factories increase this factor by about 0.8–1 units especially in mornings when air is stably stratified. The local town wind convergence at ground level favors the formation of haze on quiet days. With light winds the haze extends to 25 km down wind. The second paper plots obscuration with winds from N. and S.E. and discusses the whole question of climatic effect of town smoke at different seasons with winds of various directions and strengths. The haze either takes the form of a dome usually between 500 and 900 m high but may have no recognisable upper limit. The mean obscuration factor is—for inner city 3.84: Hohe Warte 3.49, open country 2.97. Loss of radiation intensity averages 10% for sun height 60° and 25% for sun height 15°. *Subject Headings:* **1. Urban influences 2. Turbidity 3. Vienna, Austria.**

3G–113 551.553.1:551.588.7

*Schmidt, Karl, **Die Windverhältnisse in Freiburg an heiteren Sommertagen.** [The wind conditions in Freiburg on fine summer days.] *Deutsches Meteorologisches Jahrbuch, Baden*, **1932.** p. 80–83. fig., 4 tables. **DWB**—Sets out hourly values (speed and direction) of wind on the airfield showing a secondary maximum of speed in evening due to local exchange of air between town and surroundings, aided by the Moos Forest to N. of city. The local Höllental wind is also discussed. *Subject Headings:* **1. Wind frequencies 2. Urban influences 3. Local winds 4. Freiburg, Germany.**

3G–114 551.521.31:551.510.42

Sekiguti, Rikiti, **A note on the dust content of the atmosphere as affecting the intensity of solar radiation observed in the middle part of Tokyo.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 10:(277)–(281), **1932.** In Japanese, English summary p. 18–19. **MH-BH**—From observations Aug., Sept. and Nov. 1931 extinction coefficient for solar radiation was 0.34 at Tiba, a country town, and 0.44 in Tokyo. *Subject Headings:* **1. Atmospheric absorption 2. Dust 3. Tokyo, Japan.**

3G–115 551.524.1(436)

Steinhauser, Ferdinand, **Temperaturverhältnisse von Wien zu verschiedenen Jahres und Tageszeiten nach Ergebnissen von Messfahrten in den Jahren 1931 und 1932.** [Temperature conditions in Vienna at different times of the year and day from observations on measuring journeys in 1931 and 1932.] *Akademie der Wissenschaften, Vienna, Math.-Naturw. Klasse, Sitzungsberichte*, Abt. 2a, 141:553–566, **1932.** 5 figs., table. **DLC**—A table shows the excess heat of the city center throughout the two quiet fine days. This is typical; exceptions are found in narrow alleys which are warmer in winter but up to 7°C cooler on hot afternoons. Open spaces are relatively cool especially on radiation nights. *Subject Headings:* **1. Temperature microvariations 2. Vienna, Austria.**

3G–116 551.588.7:551.553

Tollner, Hanns, **Luftströmungen und Luftwirbel über dem Wiener Stadtgebiet und ihre klimatisch-hygienische Bedeutung.** [Air currents and air circulation over the town of Vienna and their climatic-hygienic meaning.] *Austria. Staatsamt für Volksgesundheit, Mitteilungen*, No. 7, **1932.** 9 p.—Author questions belief that because of prevailing W. winds west side of Vienna is more favorable than east side. On fine quiet days the city develops its own local circulation, superposed on light winds if any. He then discusses the deflection of N. winds by the hills to the north, and local circulations due to slopes. *Subject Headings:* **1. Urban influences 2. Winds 3. Vienna, Austria.**

3G–117 551.524.1:551.588.7

Tollner, Hanns, **Untersuchungen über die Temperaturverteilung in der Stadt Wien im Sommer 1931.** [Investigations of the temperature distribution in Vienna in summer 1931.] *Akademie der Wissenschaften, Vienna, Math.-Naturw. Klasse, Sitzungsberichte*, Abt. 2a, 141(1–2), **1932.** 13 p. 2 figs., 4 refs. **DWB**—A sensitive platinum resistance thermometer (lag less than 2 sec) was carried by auto on numerous trips through Vienna at all hours of day and night. Examples of successive profiles on same day shown. Results are discussed for hot summer afternoons, early mornings and evenings, all in both calm and windy weather. In narrow streets the daily range of temperature during calms is greatly reduced, in broad streets increased, compared with official station (Hohe Warte). *Subject Headings:* **1. Temperature microvariations 2. Vienna, Austria.**

1933

3G–118 551.558:551.588.7

Albrecht, F. H. W., **Untersuchungen der vertikalen Luftzirkulation in der Grosstadt.** [Investigations of the vertical air circulation in a large town.] *Meteorologische Zeitschrift*, 50:93–98, **1933.** 6 figs. **DWB**—Describes detailed investigations of temperature, wind direction, speed and vertical component in some streets and courts of Berlin in July 1931, using a telescopic mast. Vertical sections of isotherms and wind distribution across streets and schematic representations of air circulation with reference to directions of sun's rays are shown. Continued by Albrecht and Grunow, 1935 (*see* 3G–148 below). *Subject Headings:* **1. Urban influences 2. Wind structure 3. Berlin, Germany.**

3G–119 551.510.42

Ashworth, James Reginald, **Smoke and the atmosphere: studies from a factory town.** Manchester, University Press, **1933.** 131 p. **DWB**—Observations and experiments made at Rochdale, described and illustrated. (*Same item* as A–42 in Jan. 1950 *Meteorological Abstracts*.) *Subject Headings:* **1. Atmospheric pollution 2. Rochdale, England.**

3G–120 551.591.2:551.510.42

Besson, Louis, **Influence des fumées de Paris sur la transparence de l'air à la periphérie et dans les environs de la ville.** [Influence of the smoke of Paris on the transparency of the air on the periphery and in the environs of Paris.] *Académie des Sciences, Paris, Comptes Rendus*, 197:781–783, **1933.** 2 tables. **DLC**—Gives median visibility with different wind directions for 13 stations in and around Paris with winds from 8 directions, and differences between pairs of stations to show effect of wind. The differences show the effect of chimney smoke clearly, especially Le Bourget to NNE minus Petit Clamart to SW. *Subject Headings:* **1. Visibility 2. Smoke 3. Paris, France.**

3G–121 551.510.42:551.521.1:551.591.2

Bielich, Fritz-Holm, **Einfluss der Grosstadttrübung auf Sicht und Sonnenstrahlung.** [Influence of city pollution on visibility and solar radiation.] *Leipzig. Universität. Geophysikalisches Institut, Veröffentlichungen, 2nd Ser.*, 6(2):69–119, **1933.** 36 figs., 11 photos, 16 refs. **DWB**—Visibility observations were taken in different weather types from an aircraft 500 m above the center of Leipzig, and plotted on maps. Measurements of total and red solar radiation were made on the roof of a central house and 6.5km away, outside the town. The results are reproduced in detail. Discussion includes: variation of visibility in relation to wind strength and direction, turbulence, and humidity, variation of visibility during day with height, weather and air mass type. In summer pollution is greatest between 8 and 9h, in winter there is no diurnal variation. Pt. II deals more briefly with the influence of pollution on solar radiation and its spectral distribution, the latter showing a strong shift towards red. The photographs were mostly taken in pairs, by ordinary and infrared light. *Subject Headings:* **1. Atmospheric pollution 2. Solar radiation 3. Visibility 4. Leipzig, Germany.**

3G–122 551.524.1:551.588.7

Büdel, Anton and Wolf, J., **Münchener stadtklimatische Studien.** [Munich town climatic studies.] *Zeitschrift für angewandte Meteorologie*, 49:4–10, **1933.** 6 figs., 8 refs. **DWB**—Describes some sections obtained through Munich with a thermometer on handlebars of a bicycle, Oct. 1931. Discussion includes effect of atmospheric pollution and density of building in raising minimum temperature, and on 1 July, 1932, relation of relative humidity to temperature, and equivalent temperature. *Subject Headings:* **1. Temperature microvariations 2. Munich, Germany.**

3G–123 551.584.61

Egloff, K., **Ueber das Klima im Zimmer und seine Beziehungen zum Aussenklima, mit besonderer Berücksichtigung von Feuchtigkeit, Staub- und Ionengehalt der Luft.** [Climate inside a room and its relations to external climate with special reference to humidity, dust and ion content of the air.] Eidgenössische Technische Hochschule, Zurich, Diss. No. 766, **1933.** 84 p. Review by K. Kähler in: *Naturwissenschaften*, 22(27):461–463, **1934.** **DLC**—Using information gathered in 30,000 separate observations recorded during a year (1932–33) indoors at Davos, Switzerland, the author presents his conclusions on the following facets of indoor climate: air temperature, relative humidity, rate of cooling, light intensity, dust count, number of condensation nuclei and permanence of various ions. *Subject Headings:* **1. Indoor climates 2. Davos, Switzerland.**—*M.P.K.*

3G–124 551.582(45)

*Eredia, Filippo, **Il clima di Roma.** [The climate of Rome.] (In: Rome (city). Istituto di Studi Romani, **Le scienze fisiche e biologiche in Roma e nel Lazio.** [Physical and biological sciences in Rome and Lazio.] Rome, Tip. Leonardo da Vinci, **1933.** p. 19–50. 3 figs.) **DLC**—A rough summary of the annual diurnal and other variations of the meteorological elements. Some account is given of variations of air temperature in different parts of the city, due partly to altitude and partly to radiation reflected from the streets. *Subject Headings:* **1. Urban climates 2. Rome, Italy. I. Rome (city). Istituto di Studi Romani.**

3G–125 551.584:551.588.7

Geiger, Rudolf, **Mikroklimatologie.** [Microclimatology.] *Naturwissenschaften*, 21(5–7):132–137, **1933.** 7 figs., 18 refs. **DLC**—The radical differences between overall climate and microclimate are discussed. The dependency of animal and plant life on the latter is illustrated by specific examples. Man's health and success in agriculture are shown to be closely connected with microclimates which are dependent on terrain. The effect of cities on climate is commented on with special emphasis on the relationships between city dust and smoke and the processes of insolation, precipitation and nocturnal radiation. *Subject Headings:* **1. Microclimatology 2. Urban influences.** —*M.P.K.*

3G–126 551.521.3:551.510.42

*Grundmann, Walter, **Über die Wärmeeinstrahlung von Sonne+Himmel in Breslau-Krieten, Breslau-Stadt und auf der "Hohen Eule."** [On the heat radiation from sun and sky in Breslau

district and town and on the "Hohe Eule."] *Beiträge zur Geophysik*, 40:177–186, **1933.** 2 figs., 5 tables. German and English summaries, p. 177. **DWB**—Compares actinograph and sunshine records in Breslau (135m) and on "Hohe Eule," 860 m to show effect of city smoke. *Subject Headings:* **1. Actinometric data 2. Urban influences 3. Breslau, Germany.**

3G–127 551.594.11:551.588.7

Kuhn, H., **Studie über das luftelektrische Potentialgefälle und dessen Unruhe unter besonderer Berücksichtigung des Einflusses einer Grosstadt.** [Studies on the atmospheric electric potential gradient and its irregularities with special reference to the influence of a large town.] *Zeitschrift für Geophysik*, 9:238–252, **1933.** 14 figs., equations, 21 refs. **DWB**—A detailed study of observations in the town and at the airfield of Frankfort a.M. and on the Taunus. The annual and daily variations are described and discussed in relation to wind direction relative to the town and to air mass. *Subject Headings:* **1. Potential gradient 2. Urban influences 3. Frankfort, a.M., Germany.**

3G–128 551.510.42:551.588.7

Liandrat, G., **Le problème du brouillard et des fumées à Lyon. (À propos des brouillards lyonnais, 8.)** [The problem of the fog and smokes of Lyons. (Concerning Lyons fogs, 8.)] *Études Rhodaniennes*, Lyons, 9:229–246, **1933.** **DGS**—Mainly a summary of Shaw and Owens (*see item* 3G–66 above). Author advocates installation of automatic pollution gages, a jet dust counter and daylight and UV recorders in Lyons for special studies of the problem. *Subject Headings:* **1. Smoke abatement 2. Lyons, France.**

3G–129 551.524.31:551.588.7

Mey, A., **Der Stadteinfluss auf den Temperaturgang.** [The influence of the town on variation of temperature.] *Zeitschrift für angewandte Meteorologie*, 50:293–298, **1933.** 2 figs., table. **DWB**—Table I gives monthly hourly values of temperature difference between Bremen town and country (airport) showing warmer nights and in summer slightly cooler early afternoons in town (due to screening of radiation). Effect of cloudiness, wind direction and force also discussed; difference greatest on calm, clear nights or with light N.W. winds. *Subject Headings:* **1. Urban influences 2. Temperature variations 3. Bremen, Germany.**

3G–130 551.524.1:551.588.7

*Reichel, Eberhard, **Ein Beispiel grosser Temperaturunterschiede zwischen Stadt- und Freilandstationen.** [An example of great temperature difference between town and country stations.] *Berlin. Preussisches Meteorologisches Institut, Veröffentlichungen, Bericht* No. 402:72–75, **1933.** fig., 2 tables. **DLC**—Describes temperature at 20 stations in and around Berlin, Feb. 20–24, 1933, with humidity, wind, cloud and snow at Berlin-Dahlem. Ground was snow covered and minima in town were up to 13.3°C higher than in surrounding country. Thermograph records for 8 stations reproduced. *Subject Headings:* **1. Temperature microvariations 2. Urban influences 3. Berlin, Germany.**

3G–131 551.524.36:551.588.7

Temperature readings on London roofs. *Meteorological Magazine*, London, 68:177–180, **1933.** table. **DLC**—A comparison of daily maximum temperatures in Stevenson screens on roofs at 4 places in London with neighbouring ground stations in July 1933 shows no significant difference. *Subject Headings:* **1. Temperature 2. London, England.**

3G–132 551.577.37:551.556.69

Thein, Wilhelm, **Massgebliche Schlagregenwirkung in der Bautechnik.** [Quantitative effects of driving rain in building technique.] *Annalen der Hydrographie und Maritimen Meteorologie*, 61:196–201, **1933.** fig., 4 tables. **DLC**—An investigation of the penetration of driving rain through W. S.W. walls of buildings in Hamburg in 1926–1930. Various formulas for the combined effect of wind and rain are examined and lower limits of damaging "Schlagregen" set out. *Subject Headings:* **1. Rainfall influences 2. Wind effects 3. Building construction 4. Hamburg, Germany.**

3G–133 551.510.42:620.19

Vernon, W. H. J., **Atmospheric corrosion as related to atmospheric pollution.** *Great Britain. Dept. of Scientific and Industrial Research, Investigation on Atmospheric Pollution, Report*, 19, Appendix 2:48–49, **1933.** 11 refs. **DWB**—An account of corrosion of copper and iron by SO_2 in town, country and seaside. Corrosion requires a relative humidity of 65% or more. Rusting of iron increased by suspended solid particles. Fogging of polished nickel and "blooming" of painted surfaces are due to $(NH_4)_2SO_4$. Indoors tarnishing is largely due to H_2S. *Subject Headings:* **1. Atmospheric pollution 2. Corrosion.**

3G–134 551.510.42:551.594.11

*Wright, H. L., **The influence of atmospheric suspensoids upon the earth's electric field as indicated by observations at Kew Observatory.** *Physical Society of London, Proceedings*, 45:152–170, **1933.** 7 figs., 5 tables, 17 refs. **DLC**—Observations of electrical resistivity, potential gradient, condensations of gross particles and condensation nuclei at Kew Observatory show that resistivity depends on number of particles and nuclei while potential gradient varies with resistivity and number of nuclei. *Subject Headings:* **1. Atmospheric electricity measurements 2. Atmospheric pollution 3. Kew Observatory, England.**

1934

3G–135 551.524.1:551.588.7

Berg, Hellmut and Metzler, H. K., **Temperaturmessfahrten durch das Gebiet der Stadt Hannover.** [Temperature measurements on journeys through the neighborhood of Hanover.] *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 1:111–114, **1934.** 2 figs., 6 refs. **DWB**—A journey in May 1934 showed three zones: 1) closely built up inner town with uniform temperature; 2) zone of rapid temperature change towards open country and 3) open country with uniform temperature. The differences are mainly smoothed out by day but rise to 7–8°C in evening. *Subject Headings:* **1. Urban influences 2. Temperature microvariations 3. Hanover, Germany.**

3G–136 551.524.1

*Berg, Hellmut, Metzler, H. K. and Knochenhauer, W., **Inwieweit sind unsere Temperatur- und Feuchtigkeitsmessung auf Flugplätzen representativ? I. Das Temperatur- und Feuchtefeld in 1.5 m. Höhe über dem Flugplatz Hannover. II. Mikroklimatische Ergänzungen auf dem Flugplatz Hannover.** [How far are our temperature and humidity measurements on airfields representative? I. The temperature and humidity field in 1.5 m over the Hanover airfield. II. Supplementary microclimatic investigations over Hanover airfield.] *Germany, Reichsamt für Wetterdienst, Erfahrungsberichte*, 9F, No. 2:9–14, 15–17, **1934.** 10 figs., 7 tables. **DLC**—Berg and Metzler measured temperature and humidity over the airfield with Assman psychrometer carried by auto. These showed that airfield buildings had a surprisingly large effect; on a clear evening temperatures nearby were up to 2.2°C warmer and humidities 9% lower than in open field 600 m away. Knochenhauer observed temperature and humidity at 5, 40, 80 and 160 cm above asphalt and grass surfaces. Results are shown in interesting vertical sections. At 22 h at 5 cm heights there was a temperature gradient of 8.2°C in 285 m (grass lower) and of 42% humidity; vapor pressure showed no difference. At 3½ h the difference was only 2.3°C and 14%. Differences decreased slowly with height. *Subject Headings:* **1. Temperature microvariations 2. Hanover, Germany.**

3G–137 551.588.7

Bielich, F.-H., **Was bei Siedlungen nicht übersehen werden darf.** [What must not be overlooked in settlements.] *Zeitschrift für angewandte Meteorologie*, 51:94–98, **1934.** 2 figs. **DWB**—A discussion of the linear relation between visibility as affected by industrial pollution and loss of solar radiation, with Leipzig as an example. Therefore new settlements should never be to lee of large towns for the prevailing wind directions, and not in the direction of neighbouring concentrations of industry. Most favorable site can be determined by a series of visibility observations. *Subject Headings:* **1. Smoke 2. Visibility observations 3. Leipzig, Germany.**

3G–138 551.510.42

Blacktin, S. Cyril, **Dust.** London, Chapman & Hall, Ltd., **1934.** 295 p. diagr., plate, refs. Review in: *Royal Meteorological Society, Quarterly Journal*, 61:222–223, **1935. DLC**—A book presenting aspects and problems of dust. Dust defined: its widespread nature, work and influence. Dust in relation to earth, its meteorological aspects, in various sciences, in industry, effect on health. (*Same abstract* as A–45 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Dust.**—*H.P.K.*

3G–139 551.521.1 551.576.2

***Durée de l'insolation, nébulosité et radiation globale au centre de Paris.** [Sunshine duration, cloud amount and global radiation in the center of Paris.] *Paris, Service Technique d'Hygiène, Annales*, 15:17–39, **1934.** 10 tables.—Tabulates and discusses by month and year sunshine duration and cloud amount 1894–1933 at Tour St. Jacques and mean daily radiation (horizontal surface, cal/cm²), 1923–1933. *Subject Headings:* **1. Sunshine 2. Solar radiation 3. Cloudiness 4. Paris, France.**

3G–140 551.510.42:551.588.7

Liandrat, G., **La brume des grandes villes. Fumées industrielles et fumées domestiques.** [Fog in large towns. Industrial and domestic smoke.] Repr. from: Réunion Internationale "La Securité," Conférence faite à Lyon le 12 mars **1934.** 7 p. 4 figs., 8 refs.—A discussion on how to

minimize the fog and smoke problem. Various instruments for measuring pollution are described. Author advocates wider adoption of furnaces and fires giving more complete combustion, though this would not affect the sulphur dioxide problem, and the domestic fire problem is difficult; a research library, legislative measures and the banning of objections by interested parties are also suggested. *Subject Headings:* **1. Smoke abatement 2. Urban influences.**

3G–141 551.510.42

*Owens, John Switzer, **Pollution of the air by smoke.** *Journal of State Medicine*, London, 42:51–58, **1934.** tables. **DLC**—A discussion of annual records of pollution gages at London and Glasgow and of values for April 1933 for numerous stations. *Subject Headings:* **1. Atmospheric pollution 2. London, England 3. Glasgow, Scotland.**

3G–142 551.521.3:551.510.42

Pfaff, J., **Ergebnisse der Messungen von Sonnen- und Himmelsstrahlung in Saarbrücken and auf dem Schaumberg.** [Results of measurements of sun and sky radiation in Saarbrücken and on the Schaumberg.] *Beiträge zur Geophysik*, 41:342–345, **1934.** 3 tables. English summary p. 342. **DWB**—Summarizes actinograph observations at Saarbrücken (220 m) and Schaumberg (580 m). The much lower values at the former in winter are attributed to atmospheric pollution. This confirms results of dust measurements. *Subject Headings:* **1. Actinometric data 2. Urban influences 3. Saarbrücken, Germany.**

3G–143 551.508.91 551.574.1

Pfaff, J., **Vom Feinstaub der Stadt- und Zimmerluft.** [On the fine dust of town and room air.] *Gesundheits-Ingenieur*, 57:57, **1934. DBS.** Review in: *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 1:96, **1934. DWB**—Describes a modified technique for counting dust nuclei, and determinations in and out of Saarbrücken. But on the threshold of visibility there are still uncountable nuclei. Data of size of particles are given. *Subject Headings:* **1. Dust 2. Saarbrücken, Germany.**

3G–144 551.588.7 551.510.42:551.521.31

Schmidt, Wilhelm, **Das Strahlungsklima einer Grosstadt.** [The radiation climate of a large city.] *Forschungen und Fortschritte*, 10:237, **1934.** ref. **DLC**—A brief article mentioning the influence of cities on temperature, humidity and wind conditions. Special attention is paid to the effect of city dust on radiation, an effect which in extreme cases may decrease radiation reaching a city to one-third the amount which would pass through clear air. *Subject Headings:* **1. Urban climatology 2. Radiation 3. Vienna, Austria.**—*M.P.K.*

3G–145 551.521.3:551.510.42

†Steinhauser, Ferdinand, **Grosstadttrübung und Strahlungsklima.** [Large town turbidity and radiation climate.] *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 1:175–184, **1934.** 4 figs., 7 tables, 23 refs. **DWB**—A summary of previous investigations (especially in Vienna) on the weakening of radiation by town turbidity. Includes comparative measurements of direct solar radiation, investigations of accumulation and distribution of town pollution, and its influence on the total radiation sun—sky and weakening of solar radiation in certain wave-lengths. *Subject Headings:* **1. Urban influences 2. Radiation measurements 3. Atmospheric pollution 4. Vienna, Austria.**

3G–146 551.593.54

Steinhauser, Ferdinand, **Die mittlere Trubüng der Luft an verschiedenen Orten, beurteilt nach Linkeschen Trübungsfaktoren.** [The mean turbidity of the air at different places, estimated from Linke's turbidity factors.] *Beiträge zur Geophysik*, 42:110–121, **1934.** fig., 5 tables, 11 refs. German and English summaries p. 110. **DLC**—Mean values of LINKE's turbidity factor are calculated for 53 stations over whole earth for Jan, July, seasons and year. The annual variation is deduced for country, large cities, and mountains. Diurnal variations of radiation intensity normal to sun are calculated for 50°N for country, large towns, mountains and some data for oceans. *Subject Headings:* **1. Turbidity 2. Urban influences.**

3G–147 551.524.1

Steinhauser, Ferdinand, **Neue Untersuchungen der Temperaturverhältnisse von Grosstädten; Methode und Ergebnisse.** [Recent investigations of the temperature conditions in large towns; methods and results.] *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 1:105–111, **1934.** 3 figs., table, 17 refs. **DWB**—A summary and discussion of the results of numerous temperature measurements on journeys through Vienna, Karlsruhe, Munich and Berlin under various conditions. The examples and sections refer to Vienna. *Subject Headings:* **1. Urban influences 2. Temperature microvariations 3. Germany 4. Austria.**

1935

3G–148 551.558:551.588.7

Albrecht, Fritz and Grunow, Johannes, **Ein Beitrag zur Frage der vertikalen Luftzirkulation in der Grosstadt.** [A contribution to the question of the vertical air circulation in a large town.] *Meteorologische Zeitschrift*, 52:103–108, **1935.** 7 figs., table. **DWB**—In continuation of F. Albrecht (*see* item 3G–118 above), more extensive synoptic observations were undertaken in Berlin. Novel instrument equipment is described and illustrated, vertical sections of wind and variability of temperature and some specimen records shown. A unit, the "Stodieck" Number (after K. Stodieck), representing the vertical air exchange, is described and its relation to wind speed over roofs shown. It was found that the dynamic effect of light winds was sufficient to mask the thermal effects in the streets, but in courtyards a pure thermal circulation occurred in the day (shown schematically in fig. 7). *Subject Headings:* **1. Urban influences 2. Wind structure 3. Berlin, Germany.**

3G–149 551.55:71

Antonini, —, **Znachenie shtilei pri razrabotke skhemy plana goroda.** [The importance of calms to city planning.] *Meteorologiia i Gidrologiia*, No. 3/4:172–173, **1935. DWB**—*Subject Headings:* **1. Calms 2. Town planning.**

3G–150 551.524.1(43)

Berg, Hellmut and Metzler, H. K., **Ergebnis einer Temperaturmessfahrt durch die Stadt Hannover. (Ausgeführt von der Flugwetterwarte Hannover mit Unterstützung des Magistrats der Stadt Hannover.)** [Results of a temperature measuring journey through the town of Hanover (carried out by the aerological observatory of Hanover with the support of the Magistrate of Hanover.)] *Zeitschrift für angewandte Meteorologie*, 52:1–11, **1935.** 5 figs., table, 12 refs. **DWB**—Opens with a description of the technique of surveys by automobile. Readings of dry and wet bulb, relative humidity and wind speed on 3 occasions on a warm April day are given for numerous places in and around city, isotherms and sections drawn. *Subject Headings:* **1. Temperature microvariations 2. Hanover, Germany.**

3G–151 551.586

Besson, Louis, **Influence de la température et de la saison sur la mortalité à Paris.** [Influence of temperature and season on mortality in Paris.] *Paris. Service Technique d'Hygiène, Annales*, 16:1–25, **1935.** 2 figs., 10 tables.—A discussion of the weekly death-rate at Paris from various diseases in relation to mean temperature and relative humidity. The death rate is inversely related to temperature up to 5 weeks earlier, especially in winter from inflammation of the respiratory organs. High humidity tends to delay death from these diseases, but the effect of humidity is not very clear. *Subject Headings:* **1. Bioclimatology 2. Paris, France.**

3G–152 551.521.63:551.588.7

Dannmeyer, F., **Das Ultraviolettklima der Grosstadt (Hamburg) und der Nordseeküste. (Nordheimstiftung, Sahlenburg bei Cuxhaven.)** [The ultraviolet climate of a large town (Hamburg) and the North Sea coast.] *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 2:106–109, **1935.** 8 figs. **DWB**—Gives diagrams of monthly hours of sunshine and UV radiation (Dornohours) at Sahlenburg and Hamburg 1929–1932, relations between them and diurnal variations. *Subject Headings:* **1. Ultraviolet radiation 2. Sunshine duration 3. Hamburg, Germany.**

3G–153 551.508.91 551.510.42:551.588.7

Löbner, Alfred, **Horizontale und vertikale Staubverteilung in einer Grosstadt.** [Horizontal and vertical dust distribution in a big city.] *Leipzig. Universität. Geophysikalisches Institut, Veröffentlichungen, 2nd Ser.*, 7:53–100, **1935.** 4 graphs, photos, 11 figs., 18 refs., append. **DWB**—Observations with the Zeiss conimeter and the Schott filter in Leipzig and vicinity are summarized and analyzed to show the distribution of pollution in the city under various types of atmospheric circulation. The vertical distribution is also considered. Effect of park areas on diminishing pollution is noted. (*Same item* as No. A–58 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Urban influences 3. Leipzig, Germany.**—*M.R.*

3G–154 551.524.31:551.588.7

Meyer, E. G., **Temperaturmessungen an heiteren Tagen in und am Rande einer Kleinstadt.** [Temperature measurements on clear days in and on the edge of a small town.] *Meteorologische Zeitschrift*, 52:26–29, **1935.** 2 figs., table, 5 refs. **DWB**—After a general discussion of temperature effects in a town, day and night measurements at 8 points in and around Beeskow on the Spree, Sept. 19–29, are tabulated and discussed. The town effect was complicated by those of the river, vegetation and soil color. *Subject Headings:* **1. Urban influences 2. Temperature variations 3. Beeskow, Germany.**

3G–155 551.591.3:551.510.42

Wright, H. L., **Visibility and atmospheric suspensoids at Kew Observatory.** *Royal Meteorological Society, Quarterly Journal*, 61:71–77, **1935.** 4 tables. Discussion p. 77–80. **DLC**—A comparison of visibility distances at 15 h with concentration of smoke particles gave the formula PD^3 =const., where P is concentration of particles and D =visibility. *Subject Headings:* **1. Visibility 2. Atmospheric pollution 3. Kew Observatory, England.**

1936

3G–156 551.510.42(08)

Faraday Society, **Disperse systems in gases; dust, smoke and fog; 64th general discussion of the Faraday Society, University of Leeds.** *Faraday Society, London, Transactions*, 32, Pt. 8:1041–1300, Aug. **1936.** **DLC**—A collection of 38 important scientific papers, mostly theoretical, arranged according to the following general scheme: Pt. I: a) the general properties of disperse systems composed of solid and liquid nonvolatile particles, i.e., smoke, dust, oil, fogs, etc.; b) the general properties and behaviour of disperse systems consisting of aqueous and other volatile particles, i.e., mist cloud, hygroscopic nuclei, town and country fogs. Pt. II: the industrial aspects of disperse systems in air and gases. (*Same item* as No. A–78 in Jan. 1950 *Meteorological Abstracts.*) A few of the better known contributions which have been abstracted separately in the bibliography on atmospheric pollution in the Jan. 1950 issue of *Meteorological Abstracts* are: C. H. Bosanquet (*item* A–68); O. Brandt (A–69); J. H. Coste (A–73); G. M. B. Dobson (A–75); J. Firket (A–79); Robert Melday (A–92); J. J. Nolan (A–95); J. S. Owens (A–96); H. S. Patterson (A–103); F. J. W. Whipple (A–102); R. Whytlaw-Gray (A–103). *Subject Headings:* **1. Atmospheric pollution 2. Disperse systems.**

3G–157 551.524.4:551.588.7

Fritzsche, G. and Stange, R., **Vertikaler Temperaturverlauf über einer Grosstadt.** [Vertical temperature gradient over a large town.] *Beiträge zur Physik der freien Atmosphäre*, 23:95–110, **1936.** 15 figs., 5 refs. **DLC**—Reproduces sections on days of various type based on observations with resistance thermographs tabulated at intervals of a minute at 7 heights up to 80 m. on a wireless tower in Leipzig. Two "layers" are found, one below and the other above the house tops. Austausch conditions are briefly discussed. *Subject Headings:* **1. Urban influences 2. Vertical temperature gradient 3. Leipzig, Germany.**

3G–158 551.524.2(43)

*Grebe, H., **Die Temperaturverhältnisse in Jena von 1770 bis 1935; ein Beitrag zur Witterungsgeschichte von Mitteldeutschland.** [Temperature conditions in Jena 1770–1935, a contribution to the weather-history of Central Germany.] *Germany, Reichsamt für Wetterdienst, Wissenschaftliche Abhandlungen*, 1(7), **1936.** 71 p. 27+tables, 23 refs. **DWB**—This highly detailed summary describes the preparation of monthly tables of mean and extreme temperatures and 5-day means for each year, and means and extremes for each day. *Subject Headings:* **1. Urban climates 2. Jena, Germany.**

3G–159 551.510.42

Ives, James E., Britten, R. H., Armstrong, D. W., Gill, W. A. and Goldman, F. H., **Atmospheric pollution of American cities for the years 1931–1933, etc.** *U. S. Public Health Service, Public Health Bulletin* 224, **1936.** 75 p. 37 figs., 43 refs. **DLC**—Origin and nature of study; description of instruments, technique and records; composition and particle size of suspended and settled dust; seasonal and diurnal variations in pollution; relation of pollution to meteorological factors. (*Same abstract* as No. A–53 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. United States.**

3G–160 551.588 551.524.1

Middleton, William Edgar Knowles and Millar, F. G., **Temperature profiles in Toronto.** *Royal Astronomical Society, Toronto, Journal*, 30:265–272, **1936.** Review by E. G. Bilham in: *Royal Meteorological Society, Quarterly Journal*, 63:123–124, **1937.** **DLC**—Description of results of observations by thermo-couple in front of motor car on journeys outward from center of Toronto, showing especially remarkable variations at night, up to 34°F at places only 7 miles apart. *Subject Headings:* **1. Urban climates 2. Temperature microvariations 3. Toronto, Canada.**

3G–161 551.506.3(431/5) 551.524.2

*Naegler, Wilhelm, **Statistik der Temperaturverhältnisse von Leipzig (1831–1935).** [Statistics of temperature conditions in Leipzig.] *Akademie der Wissenschaften zu Leipzig, Math.-Phys. Klasse, Berichte*, 88:67–106, **1936.** 9 tables. **DLC**—After setting out mean monthly temperatures,

their variations and the dates of extremes, the bulk of the work consists of monthly values year by year of mean temperature, departures from 5-yearly mean, daily and 5-day means for the whole period and extreme departures, warmest and coldest days, percentage frequency distributions of daily means and extremes and absolute extremes for each month of each year. *Subject Headings:* **1. Urban climates 2. Leipzig, Germany.**

3G–162 551.524.1

Spence, M. T., **Temperature changes over short distances as shown by records in the Edinburgh district.** *Royal Meteorological Society, Quarterly Journal*, 62:25–30, **1936.** Discussion p. 30–31. **DLC**—Temperature records at 6 stations in and around Edinburgh, heights 190–780 ft are discussed, but as none are surrounded by buildings the effect of the city is not clearly shown. *Subject Headings:* **1. Temperature 2. Edinburgh, Scotland.**

3G–163 551.594.13:551.588.7

Whipple, Fred J. W., **The influence of urban conditions on the circulation of electricity through the atmosphere.** *Faraday Society, London, Transactions*, 32(8):1203–1209, Aug. **1936.** 2 figs., table, equations. **DLC**—Circulation between earth's surface and Kennelly-Heaviside layer depends on potential of the latter, effective resistance of a column of the atmosphere and specific resistance of air near the ground for positive electricity. Mean values and diurnal variation of these over oceans and at Kew Observatory (Richmond) are tabulated and local peculiarities at Kew discussed. *Subject Headings:* **1. Atmospheric electricity 2. Urban influences 3. Kew Observatory, England.**

1937

3G–164 551.524.34:551.588.7(52)

Arakawa, Hidetoshi, **Increasing air temperature in large, developing cities.** *Beiträge zur Geophysik*, 50:3–6, **1937.** 3 figs., table. **DLC**—Secular variation of mean temperature is calculated for 21 large towns in Japan from at least 50 years' data. Data are related to latitude but not to changing population. *Subject Headings:* **1. Temperature trends 2. Japan.**

3G–165 551.521.1:551.510.42

Ashworth, James Reginald, **Observations on light rays in Rochdale.** *Rochdale Literary and Scientific Society, Transactions*, 19:128–135, **1935–1937.** 3 figs. **NN**—A study of the effect of atmospheric pollution on light and UV rays. The data are tabulated for different days of the week showing increased radiation on Sundays in summer due to shutting down factories, and decreased radiation in winter due to home fires. *Subject Headings:* **1. Atmospheric pollution 2. Solar radiation 3. Rochdale, England.**

3G–166 551.588.7 551.586(02):697

Brezina, Ernst and Schmidt, Wilhelm, **Das künstliche Klima in der Umgebung des Menschen.** [Artificial climate in human environment.] Stuttgart, Ferdinand Enke, **1937.** 212 p. 22 figs., 28 tables, refs. **DLC**—The first chapters deal with the climatic elements, including CO_2 and dust, and their measurement, human physiology and "climate" inside clothes. The modifications of external climate by an individual house are discussed—warmth and light, ionization, humidity, deleterious effects, ventilation, dust, etc.—and building for special purposes. The last chapter discusses town climate in detail—effects on light and insolation, atmospheric impurities including haze and fog, dust of local origin, microorganisms and poisonous gases, ion content, and urban modifications of wind, temperature and humidity. The final section, "Living in the town," sums up these effects under the heads: contrast between country and town, house blocks, types and climate of houses, types of street, considerations of health, green spaces, subdivision of the urban region, effect of town life on the population, garden cities and settlement. Many of the illustrations refer to Vienna. (*See also item* No. 2.4–167 in April 1951 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Urban influences.**

3G–167 551.510.42

Ginner, Romed and Hess, Victor Francis, **Studie über die Verteilung der Aerosole in der Luft von Innsbruck und Umgebung.** [Studies on the distribution of aerosols in the air of Innsbruck and neighbourhood.] *Beiträge zur Geophysik*, 50:22–43, **1937.** 4 figs., 13 tables. English summary p. 22, German summary p. 42–43. **DLC**—Diurnal and annual variations of dust content and nuclei in Innsbruck and surroundings are tabulated and plotted, and vertical decrease discussed. *Subject Headings:* **1. Dust 2. Nuclei count 3. Innsbruck, Austria.**

3G–168 551.575.2(436)

Hader, F., **Der Nebel in Wien als Erscheinung des Stadtklimas.** [Fog in Vienna as an element of town climate.] *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 4:116–121, **1937.** fig.,

3 tables, 7 refs. **DLC**—Fog is an important element of town climate. Seasonal diurnal variations in 10 districts of Vienna are tabulated and classified into types. Fog frequency depends not only on ground fog but also on low stratus. *Subject Headings:* **1. Fog distribution 2. Vienna, Austria.**

3G–169 551.501.9(09) 551.524.2(437) 551.524.3

*†Hlaváč, Václav, **Die Temperaturverhältnisse der Hauptstadt Prag. Teil I.** [The temperature conditions of Prague. Pt. I.] *Prager Geophysikalische Studien*, 8, **1937.** 111 p. 27 figs., 2 plates, 25 tables, 49 refs.—Includes an account of the site, the various series of observations from 1752 to 1936, the method of working up and the results, comprising long-period normals, daily and annual variation and extremes. Hourly and daily tables are given as appendices. A very complete study. *Subject Headings:* **1. Urban climates 2. Prague, Czechoslovakia.**

3G–170 551.588.7(02)

†Kratzer, Albert, **Das Stadtklima.** [Town climate.] Braunschweig, F. Vieweg und Sohn. **1937.** 143 p. 43 figs., tables, 250 refs. **DLC**—A compilation of a large amount of material. Chapters deal with: historical development of towns, methods of observation; density of population, industry, fuel consumption; effect of atmospheric pollution on radiation and visibility; temperature differences town-country; wind system peculiar to a town, and the blocking effect of the buildings; humidity, town fog and cloud formation. Effect of town on precipitation in general, thunder, hail, snow. In a general summary author concludes that the most noticeable effect of a town is its smoke. This modifies the climate, absorbing 10–20% of the solar radiation. The daily range of temperature is decreased, but the mean is raised, especially in winter, by the large amount of heat set free by fuel consumption. In winter periods of high humidity lead to fog. In summer the heat absorbed by the smoke causes convection and a local wind system which, in favorable conditions, leads to increased cloud and precipitation. The smoke increases the electric potential. It is not clear whether this leads to increased thunderstorm activity, but there appears to be more hail over town than country. The desert of stone and brick lowers the humidity. Wind speed is decreased, and the blocking effect causes rising currents and cloud formation to windward. These effects are illustrated by numerous examples and an extensive bibliography. *Subject Headings:* **1. Urban climates 2. Urban influences.**

3G–171 551.501.9 551.524.1

Robb, A. D., **Comparison of temperatures from roof and ground exposures at Topeka, Kans., 1935–1936.** *Monthly Weather Review*, 65:388–392, **1937.** 7 figs., 2 tables. **DWB**—An analysis of 2 years' differences of mean, maximum and minimum temperatures between roof of Weather Bureau Office and above grass 2½ miles distant. Frequencies of differences are analyzed as a whole and for different types of weather and wind directions. There is little difference in overall means but the daily range tends to be larger on the roof than at the ground station. *Subject Headings:* **1. Temperature variations 2. Topeka, Kansas.**

1938

3G–172 551.581:72

International Federation for Housing and Town Planning, 16th Congress, Mexico, 1938, **Habitation dans les pays tropicaux et subtropicaux.** . . . [Housing in tropical and sub-tropical countries.] Brussels, [1938]. 87 p. illus., tables. In French, English and German. **NPL**—Unchecked. *Subject Headings:* **1. Building design 2. Tropics.**

3G–173 551.576.34:551.588.7(439.1)

Réthly, Antal, **A felhözet fokozatos nagyobbodasa Budapesten (1861–1937).** [The gradual increase in the cloudiness of Budapest.] *Időjárás*, 42:101–120, May–June, **1938.** 5 figs., 15 tables. In Hungarian, German summary p. 117–120. **DLC**—Between 1787 and 1935 population increased from 47,000 to a million. A discussion of cloud observations since 1861 shows a gradual increase in cloud amount and number of overcast days (72 to 113), and decrease of clear days (70 to 51). Days with fog increased by 30 a year. Changes especially notable in December and attributed to increased combustion products. *Subject Headings:* **1. Cloudiness 2. Urban influences 3. Budapest, Hungary.**

1939

3G–174 551.510.42:551.521.16

Galanin, N. F., **Osveshchennost' rasseiannym svetom atmosfery v Leningrade po nabliudeniiam za chetyre goda (1931–1934 gg.).** [Illumination by diffuse light from the atmosphere in Leningrad according to observations from 1931 to 1934.] *Meteorologiia i Gidrologiia*, No. 4:8–12, **1939.** 5 figs., 3 tables, 6 refs. **DLC**—Special observations on illumination were carried out in Leningrad from 1931 to 1934. Data for this period are presented and analyzed in the article. A comparison

with data recorded at nearby Slutsk for the same period shows a similar trend at both points, with absolute values in Leningrad much lower, the mean about 50% of Slutsk's chiefly on account of atmospheric pollution in large cities. *Subject Headings:* **1. Daylight illumination 2. Atmospheric pollution 3. Diffuse radiation 4. Slutsk, U.S.S.R. 5. Leningrad, U.S.S.R.**—*C.K.*

3G–175 551.510.42:551.588.7

Hakoda, A. and Kinka, T., **On micro-airmass study of Oosaka and its neighbourhood.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 17:425–434, **1939.** In Japanese, English summary p. (42)–(43). 10 figs., 5 tables. **DWB**—The polluted air which covers the large manufacturing city ("City air mass") in fair weather is 1–3°C warmer and 10–30% drier than other air masses. Amount of heat contained is $1.7–3.0 \times 10^{13}$ g.cal., due to heat of combustion and absorption of solar radiation by smoke. On calm days there is a convergence of air into the city. *Subject Headings:* **1. Atmospheric pollution 2. Urban influences 3. Osaka, Japan.**

3G–176 551.5:69

Hrudička, Bohuslav, **Meteorologie im Dienste der Bautechnik.** [Meteorology in the service of building technique.] *Zeitschrift für angewandte Meteorologie*, 54:37–47, 69–76, **1937**; 55:110–119, 289–294, **1938**; 56:248–255, **1939.** **DWB**—A thorough summary with numerous formulas and references of all the various factors affecting buildings, including damage by wind and rain, penetration of wind-driven rain (Schlagregen) through walls, heating, thermal insulation, humidification, frost damage, length of building period, snow load, natural illumination, and acoustics (of street noises, as part of town climate). *Subject Heading:* **1. Building construction.**

3G–177 551.510.42

Matsui, H., **Atmospheric impurities in the central part of Tokyo.** *Meteorological Society of Japan, Journal, 2nd Ser.*, 17:367–372, **1939.** 4 figs., 12 tables. In Japanese, English summary p. (34). **DWB**—Chlorides averaged 4.4γ/m³, highly variable in relation to wind velocity; sulphates and sulphuric acid 7.3γ, maximum in winter; ammoniacal nitrogen 23.2γ, maximum in June due to putrefaction; nitrite nitrogen 5.6γ. *Subject Headings:* **1. Atmospheric pollution 2. Tokyo, Japan.**

3G–178 551.510.42

Reisner, (Ing.) von, **Die Verunreinigung der Stadtluft.** [Pollution of city air.] *Technisches Gemeindeblatt*, Berlin, 42:125–129, **1939.** **DSG**—Pollution and soot-fall in cities in relation to season, weather, day of week, etc. (*Same item* as A-101 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Weather conditions.**

3G–179 551.588.7

Schou, Georg, **Fuktighetsundersøkelser i husrum.** [Humidity investigations in dwelling houses.] *Norske Elektrisitetsverkers Forenings, Publikasjoner*, No. 129, **1939.** 40 p. 19 figs., tables. German summary p. 36–40.—Observations of temperature and humidity were recorded by thermohygrograph in rooms in buildings of different types in winter with various methods of heating. The differences were not due to nature of heating but to "local" conditions—number of occupants, size, ventilation, floor covering, etc. There is a linear relation between room temperature and absolute humidity. *Subject Heading:* **1. Indoor climates.**

1940

3G–180 551.577:551.588.7

§Belger, Wilhelm, **Der Grosstadteinfluss auf nichtstationäre Regenfronten und ein Beitrag zur Bildung lokaler Wärmegewitter.** [City influence on non-stationary fronts and a contribution to the formation of local heat thunderstorms.] Cologne, Orthen, **1940.** 69 p. figs., refs., equations. **DLC**—Four cases of heavy cold-frontal rain (one with thunder and hail) in the Berlin area are analyzed in great detail, with many charts and diagrams to determine whether a large city has any effect on the intensity, duration, amount of rain or the shape of the front. Synoptic charts for Central Europe and local isohyetal charts, based on dozens of stations in the Berlin area, substantiate this investigation. Significantly two of the four cases showed a marked urban influence: the maximum rainfall was over the city center. In one case the opposite was true. Aerological soundings into Berlin shown for the hail situation on April 29, 1934. (*Same abstract* as No. 2.5–137 in May 1951 *Meteorological Abstracts.*) *Subject Headings:* **1. Precipitation 2. Urban influences 3. Thunderstorms 4. Hail 5. Berlin, Germany.**—*M.R.*

3G–181 551.524.3:551.5887.

Bider, Max, **Temperaturunterschiede zwischen Stadt-und Freilandstationen.** [Temperature difference between town and country station.] *Helvetica Physica Acta*, Basel, 13:5–7, **1940.** Review in: *Zeitschrift für angewandte Meteorologie*, 58:371–372, **1941.** **DWB**—Summary of comparable

observations in and near Basel. Inside warmer than outside, by 3°C in clear, calm weather, decreasing with increasing wind speed and cloud amount. Frost days and very hot days both fewer in town than country. As town station was on edge of town in 1900, but now in middle, this accounts for secular change. *Subject Headings:* **1. Urban influences 2. Temperature variations 3. Basel, Switzerland.**

3G–182 551.524.1:551.588.7

Lossnitzer, H. and Freudenberg, H., **Temperaturmessfahrten im Gebiete der Stadt Freiburg in Breisgau.** [Temperature measurements on journeys in the district of Freiburg.] *Meteorologische Zeitschrift, Bioklimatische Beiblätter*, 7:30–39, **1940.** 6 figs., tables. **DLC**—A detailed summary of temperature measurements at 21 points on numerous journeys through Freiburg as a result of which 3 series of hourly sections are obtained (winter days, approach of bad weather, fine May weather). *Subject Headings:* **1. Urban influences 2. Temperature microvariations 3. Freiburg, Germany.**

3G–183 551.510.42:69

Schaffer, R. J., **Atmospheric pollution in its bearing on the weathering of stone and similar building materials.** *Great Britain. Dept. of Scientific and Industrial Research, Investigation on Atmospheric Pollution, Report*, 1938–39, 25:111–121, **1940.** 6 plates.—Report discusses: discoloration by tarry constituents of soot as it affects different materials such as limestone and sandstone; chemical effects on limestones and slates, of acids in air and rainwater, and possible remedial measures by surface treatment with a preservative and washing with clean water. Photographs show effects of pollution on buildings in London, and micro-sections of weathered surfaces. *Subject Headings:* **1. Atmospheric pollution 2. Weathering of materials.**

1941

3G–184 551.588.7:551.524

Iyer, V. Doraiswamy, **Air temperatures given in meteorological reports compared with those on the first floor of a building at Poona.** *Current Science*, Bangalore, 10:329–330, **1941. DLC**—A year's comparison of maximum and minimum temperatures in the screen in the open with a thermograph on a first floor landing. Mean daily maxima were 7.7°F higher and minima 9.9° lower in screen than in building, differences greatest in winter and spring. *Subject Headings:* **1. Indoor climates 2. Poona, India.**

1942

3G–185 551.5:69

Wegener, Kurt, **Haus und Klima.** [House and climate.] *Zeitschrift für angewandte Meteorologie*, 59:1–6, **1942. DWB**—A general article based on experience in several widely separated parts of the earth (Montevideo, Spitzbergen, Samoa, Brazil, Austria, etc.). Author favors curly streets to avoid carriage of dust by wind. *Subject Heading:* **1. Building design.**

3G–186 551.578.72:551.588.7(43)

Weinländer, A., **Grosstadt und Klima.** [A big city and climate.] *Zeitschrift für angewandte Meteorologie*, 59:390–393, **1942.** 3 figs. **DWB**—Local heating (and resulting greater instability of air) due to the city buildings and paved streets is said to account for mean distribution of hail in Munich and vicinity (based on records for 1884–1940). Greatest frequency occurs on east side of the city. Center of anomalous fall is 12 km east of center of city, agreeing with average speed of west wind (30–50 km/hr) and time for hail formation (15–25 min.). A chart showing the difference between "ideal" annual rainfall distribution and actual observed rainfall, shows a similar anomaly just to the northeast of the city. Rainfall influences, however, are more complicated so the pattern is not as clear as for hail. (*Same item* as No. D–171 in April 1950 *Meteorological Abstracts*.) *Subject Headings:* **1. Urban influences 2. Hail distribution 3. Rainfall distribution 4. Munich, Germany.** —*M.R.*

1943

3G–187 551.576.3(43):551.588.7

Berg, Hellmut, **Die Bewölkungsverhältnisse über der Grosstadt Köln und ihrer Umgebung (eine vergleichende Untersuchung).** [Cloud conditions over the large town of Cologne and its surrounds (a comparative investigation).] *Zeitschrift für angewandte Meteorologie*, 60:108–117, **1943.** 5 figs., 2 tables. **GB-MO**—Gives mean monthly values of cloud amount at Cologne (airport, 6 miles from center, and town) at 7, 14 and 21 h and discusses frequencies of different amounts. Among the results are the confirmation of greater Cu amount over town (due to obstacle effect) but Cu seems to form first over country. Town may also break up a continuous but thin St. cover. *Subject Headings:* **1. Urban climatology 2. Cloud variations 3. Cologne, Germany.**

3G–188 551.588.7

*Berg, Hellmut. **Der Einfluss einer Grosstadt auf Bewölkung, Niederschlag und Wind.** [The influence of a large town on cloudiness, precipitation and wind.] *Meteorologische Zeitschrift, Bioklimatische Beiblatter*, 10:65–70, 1943. 5 figs., tables, 8 refs. **DWB**—Tables of clear, overcast and cloudy days at Hanover, Cologne, Berlin are compared with surrounding stations. Then special occasions at Cologne were investigated by aircraft showing dissolution of a St. cloud deck and wind circulation over the roofs shown by smoke plumes. *Subject Headings:* **1. Urban influences 2. Germany.**

3G–189 551.510.42

Dobson, Gordon Miller Bourne and Meetham, Alfred Roger. **The air we breathe in town and country. Being the substance of a Friday evening discourse at the Royal Institute of Great Britain on 12th February, 1943.** *Smokeless Air*, London, 14:52:14–20, 1943. 2 figs. **DLC**—A brief description of instruments for measuring solid and gaseous impurities and loss of daylight or UV light, results of measurements in various towns, a fuller account of the survey of pollution at Leicester, and a discussion of the difference between dirty town fogs and clean country fogs, and of the possibility of mitigating the smoke and sulphur dioxide nuisance in cities. *Subject Headings:* **1. Atmospheric pollution 2. Leicester, England.**

1944

3G–190 551.575.1:551.510.42:551.588.7

Pye, Norman. **The formation of land fogs and the atmospheric pollution of towns.** *Geography*, London, 29:71–80, 1944. 3 figs., 9 refs. **NNA**—Note is made of the effect of towns on the special types of weather in them, in this instance primarily fog—due principally to pollution particles and common location of cities in valleys or low areas. The article deals first with the general meteorological causes of fog and then takes up the man or city-made causes. A fog map of the British Isles shows densest fog areas over the most industrial zones. (*Same item* as A-130 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Fog 3. Urban influences 4. British Isles.**

3G–191 551.582(436) 551.552(436)

*Scheidler, A., **Wind und Wetter in Wien. (Ein Beitrag zum Klima von Wien).** [Wind and weather in Vienna. (A contribution to the climate of Vienna.)] *Meteorologische Zeitschrift*, 61:117–123, 1944. 7 figs., 7 tables, 7 refs. **DWB**—A detailed study of the weather of Vienna with winds from different directions, and especially a comparison of southerly and westerly winds. *Subject Headings:* **1. Urban climates 2. Winds 3. Vienna, Austria.**

1945

3G–192 551.506.3(42) 551.510.42

*†Great Britain. Dept. of Scientific and Industrial Research, **Atmospheric pollution in Leicester; A scientific survey.** *Great Britain. Dept. of Scientific and Industrial Research. Atmospheric Pollution Research, Technical Paper*, No. 1, 1945. 161 p. 4 plates, 30 figs., 38 tables, 34 refs. **DWB**—Results of several years quantitative observations of smoke conditions at a number of stations in and about a heavily populated industrial area. History of organization; description of apparatus for measuring sootfall, suspended particles, SO_2, and ultraviolet in daylight. Variation in pollution about heavily polluted center of town; concentration remains heaviest there even on windy days, but the distribution is slightly skewed toward the downwind side and the distribution of ultraviolet radiation even more skewed as it is affected by particles dissipated upward and subject to more wind-drift. Effect of smoke carried great distances from industrial areas on both town and country air. Effect of central smokeless zone. Variations with time of day, week, year, etc. Methods of control. Deposits on vegetation. Monthly weather and contamination data for 1937, 1938, 1939, including lapse-rates to 1,000 ft, earth and grass temperatures, thunderstorms, sunshine, cloudiness, fog, wind, etc. Reviewed by A. R. MEETHAM in *Weather*, 1:28–29, 1946. (*Same abstract* as No. A-142 in Jan. *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Leicester, England.**

3G–193 551.588

Kraus, E., **Climate made by man.** *Royal Meteorological Society, Quarterly Journal*, 71:397–412, 1945. 2 figs., 4 tables, 11 refs. **DLC**—Pts. 1 and 2 deal briefly with the reactions of the naked body to climate, and to climate inside clothes. Pt. 3 discusses the climate of the house, under subheadings: temperature and composition of the air. Pt. 4 summarizes the climate of towns. Reduced wind velocity is illustrated by Detroit and Port Huron, temperature by comparisons of monthly means and mean extremes at pairs of town and country stations showing greater warmth and smaller range in former. Composition of the air includes impurities, relative humidity and fog, and urban disease. Pt. 5 compares climate of the cultivated countryside. *Subject Heading:* **1. Urban influences.**

3G–194 551.582(497.1)

*†Manohin, Vitalij, **Podnebje Ljubljane.** [The climate of Ljubljana.] *Geografiski Vestnik*, Ljubljana, 17(1/4):3–48, **1945.** tables, 46 refs. In Serbian, English summary p. 46–48. **DSI**—The author has made a review of the existing literature on the climate of Slovenia (Serbia) and a careful analysis of 86 years of meteorological data for Ljubljana (1851–1936). Not only rainfall and temperature, but cloudiness, wind direction and speed (frequencies), absolute humidity (greatest observed vapor pressure 12.4 mm—1851–1936), synoptic types (based on direction of air flow), fog, snow, thunderstorms, hail, etc., are treated analytically. Special emphasis is placed on long period changes, local variations and on singularities. Daily mean temperatures are calculated for the 86 years and shown graphically along with curves for Paris (1757–1886), Breslau (1791–1890) and Vienna (1775–1875). (*Same abstract* as No. 8–116 in Aug. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Ljubljana, Yugoslavia.**—*M.R.*

3G–195 551.510.42

*Siegel, Jac. and Feiner, Benjamin, **Sootfall-studies for New York City.** *Air Treatment Engineer*, 9(2):42–47, Feb. **1946.** 5 figs., 5 tables.—Conclusion that relative humidity, wind direction and velocity have very little effect on the final pollution in the city as a whole; that total settled matter varied inversely with temperature and directly with total precipitation. (*Same abstract* as No. A–166 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. New York, New York.**—*H.P.K.*

1946

3G–196 551.588.7:71

Geddes, Arthur, **Planning and climate. Climates of region, locality and site, and factors in lay-out.** *Association of Planning and Regional Reconstruction, London, Report* No. 38, **1946.**—Discusses siting of buildings in a town in relation to local climate and purpose. Thus business premises occupied only by day may be located in a hollow where extremes are greatest; residential districts, should be on slopes, preferably in the neutral zone between katabatic and prevailing opposing wind. *Subject Heading:* **1. Town planning.**

3G–197 551.521.11:551.584:551.586

Vinaccia, Gaetano, **Nuovo sistema peril calcolo rapido del soggiamento urbanistico ed edile. Thermoeliografometria.** [New method for the rapid calculation of insolation of towns and houses. Thermoheliographometry.] *Accademia Nazionale dei Lincei, Rome, Atti*, 343 (1):1301–1305, **1946. DLC**—Superposition of curves giving apparent displacements of the sun and latitudes allows the calculation of the quantity of heat received by walls and roofs at any point. A heliothermal calendar applicable to various latitudes takes account of the inclination of the surfaces. *Subject Heading:* **1. Radiation calculations.**

1947

3G–198 551.582.1(42):551.584

Balchin, W. G. V. and Pye, Norman, **A micro-climatological investigation of Bath and the surrounding district.** *Royal Meteorological Society, Quarterly Journal*, 73:297–319, **1947.** 3 figs., 2 plates. Discussion p. 319–323, 334. **DLC**—An account of the organization of standard observations at 16 stations in and around Bath and summary of the results. The hollow in which the city lies causes inversion fogs but artificial heating makes these less dense in the center of the city, where they are sometimes replaced by small Cu. Effect of urban influences and local topography on living conditions also discussed. *Subject Headings:* **1. Urban climates 2. Urban influences 3. Topographic effects 4. Bath, England.**

3G–199 551.510.42:551.553.11

Beer, Charles G. P. and Leopold, Luna B., **Meteorological factors influencing air pollution in the Los Angeles area.** *American Geophysical Union, Transactions*, 28:173–192, **1947. DLC**—The important factors are the height of the prevailing summer subsidence inversion and the local sea-land breeze regime. (*Same item* as No. A–173 in Jan. *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Los Angeles, California.**

3G–200 551.577.51:551.577.2(439.1)

Berkes, Zoltán, **A csapadek eloszlása Budapest terûletén.** [Distribution of precipitation amount over the city of Budapest.] *Idöjárás*, 51:105–111, **1947.** 3 figs., 3 tables, 8 refs. English summary p. 145. **DLC**—Distribution of precipitation 1932–41 corresponds roughly with the orography but effect of town is shown in relatively greater thunderstorm precipitation over Pest in spring and summer. Owing to prevailing N.W. winds maximum is displaced to S.E. *Subject Headings:* **1. Precipitation distribution 2. Urban influences 3. Budapest, Hungary.**

3G–201 551.510.42

Brooks, Charles E. P., **Atmospheric pollution in Great Britain in relation to the burning of coal.** National Smoke Abatement Society. Proceedings of the Edinburgh Conference, p. 98–106, **1947.** 7 figs., table. **DWB**—A map of the total solid deposits recorded by pollution gages over Britain is compared with consumption of coal and frequency of poor visibility. Pollution deposits are mapped for Glasgow and Manchester and a section W–E across London shows relation between pollution and winter sunshine. (*Same item* as A–174 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Urban influences 3. London, England.**

3G–202 551.58:728

Drysdale, J. W., **Climate and house design; summary of investigation 1945–1947.** *Australia, Commonwealth Experimental Building Station, Duplicated Document* No. 21, June **1947.** 33 p. photos, diagr. **DWB**—Test huts differing in materials of wall construction and in ceiling insulation and erected with the same orientation in towns in eastern Australia representative of various climatic zones were used to determine comfort conditions indoors under different climatic conditions. The construction and design of the huts are described and illustrated with diagrams and photographs and the dry bulb temperatures inside the huts during winter and summer are discussed. *Subject Headings:* **1. Building design 2. Australia.**—*I. L. D.*

3G–203 551.586

Handisyde, Cecil C., **The climate of the home.** *Weather*, 2:82–87, **1947.** fig. 2 plates, table. **DWB**—Mainly based on "Domestic heating in America" (H.M. Stationery Office, 1946). Methods of heating and ventilating are related to sunshine and temperature in U. S. and British cities. *Subject Heading:* **1. Heating and ventilating.**

3G–204 551.510.42:551.578.41

Hochholzer, Hans, **Aerosol und Kryoplankton in Wiener Schneefällen 1946/47.** [Aerosols and ice-plankton in Vienna snowfalls.] *Mikroskopie*, Vienna, 2:235–244, **1947.** 3 figs., table, 4 refs.—Microscopical study of the organic and inorganic constants of snow. The number of particles in 1 cc snow varied from 48,000–210,000. Inorganic particles mostly quartz and clay, organic very varied. The vitality of the kryoplankton when temperature rises to 0°C is very remarkable. *Subject Headings:* **1. Aerosols 2. Snow analysis 3. Vienna, Austria.**

3G–205 551.588.7

Landsberg, Helmut E., **Microclimatology.** *Architectural Forum*, Boston, 86(3):114–119, **1947.** 23 figs. **DLC**—A thorough discussion of the effects of local conditions on temperature, wind, insolation, sound, smoke and dust. Houses should be located so as to take advantage of, or minimize the effects of lakes, slopes, hills, other buildings and groves of trees. Schematic diagrams in color illustrate effects of topography and obstructions on these meteorological elements. *Subject Headings:* **1. Microclimatology 2. Urban influences 3. Building design.**

3G–206 551.510.42

Marsh, Arnold, **Smoke.** London, Faber & Faber, **1947.** 306 p. 21 pls., 5 diagrs., 173 refs. **DLC**—Mainly an outline of methods of reducing the smoke problem of great cities by the provision of smokeless fuels and electric appliances. Effects of smoke on visibility, sunshine, etc. (*Same item* as A–191 in Jan. 1950 *Meteorological Abstracts.*) *Subject Heading:* **1. Smoke abatement.**

3G–207 551.582(44)(02)

Maurain, Charles Honoré, **Le climat parisien.** [The climate of Paris.] Paris, Presses Universitaires, **1947.** 163 p. 22 figs., 40 tables. Summary in: *La Météorologie*, **1948.** p. 85–86. **DWB**—After a general introduction, author deals successively with radiation (total and of different wave-lengths) insolation, mean and extreme temperature, pressure, winds, humidity, rain, atmospheric electricity for Paris as a point in France. Pt. 2 describes particular climatic characteristics of Paris as a large town—atmospheric pollution (solid and gaseous), radiation, temperature, humidity and rain. Pt. 3, "Micrometeorology," deals with the climate of the layers of urban air in and near (0–100 cm) the ground, and the application of local meteorology to urban building. Pt. 4, "Some points concerning relations between climate and man," deals with the protective effect of clothing, the stimulating effect of a variable climate and artificial climates. (*Same item* as No. 3.7–176.) *Subject Headings:* **1. Urban climates 2. Paris, France.**—*M. R.*

3G–208 551.582(439.1):551.584

*Réthly, Antal, **Budapest eghajlata.** [The climate of Budapest.] Budapest, **1947.** 147 p. 24 figs., 33 tables, 124 refs. In Hungarian, English titles and summary. **DWB, MH-BH**—This work is not only a thorough climatology of a single city which is also a health resort, but a docu-

mentation of one of the longest and best meteorological records in the world. Monthly and annual mean temperatures are given from 1780 to 1947 and averages for each 20 years, for the "Normal Period (1901–1930)" and running 10 year averages are used both in tables and graphs to analyze the secular variation in temperature. Precipitation records date from 1841, pressure from 1809, cloudiness from 1861 and other elements from 1871 when the Hungarian Meteorological Service was established. Daily normals of pressure, temperature, cloudiness, humidity and precipitation are given for the period 1871–1945. In addition there are records from a network of stations within a radius of 10 miles having consistent records for 10 years, thus making it possible to draw a chart showing the microvariation in mean precipitation or the ishyets for an individual storm. One such cloudburst showed variation from 4.5 down to 0 in a short distance. Frequency distribution, industrial applications and influence, etc. are given. (*Same abstract* as No. 1–132 in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Long period records 3. Budapest, Hungary.**—*M.R.*

3G–209 551.521.12(436)

Sauberer, Franz, **Ergebnisse der Strahlungsregistrierungen mit dem Robitzsch-Aktinographen bis 1947 in Österreich.** [Results of records of radiation with the Robitzsch actinograph up to 1947 in Austria.] *Austria. Zentralanstalt für Meteorologie und Geodynamik, Jahrbuch,* **1947.** p. D34–D39. 2 figs., 2 tables. **DWB**—Compares total (sun–sky) incoming radiation at 5 places in Austria, including Vienna, country and Sonnblick for period 1937–1946. *Subject Headings:* **1. Actinometric data 2. Austria.**

1948

3G–210 551.506.3 551.577.2 551.582

Angervo, J. M., **Helsingin sadeolot 1845–1944.** [Precipitation over Helsinki 1845–1944.] *Helsinki. University. Meteorologian laitos, Mitteilungen,* No. 61, **1948.** 58 p. 2 figs., 16 tables, 44 refs. English summary p. 35.—The valuable tables give monthly and seasonal averages for 100 years, also shorter periods showing the secular change, days exceeding 1, 5 and 10 mm, extreme values for months and year and 2 and 3 month periods, daily maxima, data of snowfall and snow days, and rainfall data for other stations. The wettest period was 1881–1910 (721 mm), the driest 1851–1880 (616.5 mm). *Subject Headings:* **1. Precipitation distribution 2. Urban climates 3. Helsinki, Finland.**

3G–211 551.524.36:551.588.7

Berényi, Dénes, **Effect of house-blocks of towns on the fall of temperature at night.** *Meteorological Magazine,* London, 77:277–278, **1948.** 2 tables. **DLC**—A comparison of minimum temperatures on 4th floor of a house in center of Debrecen, Hungary, with open space 3 km distant, taking account of cloud and wind, shows that with clear sky and light winds minimum temperature in town was 3.7–6.7°C higher than in open. *Subject Headings:* **1. Temperature 2. Urban influences 3. Debrecen, Hungary.**

3G–212 551.510.42

National Smoke Abatement Society, **Guilty chimneys. The evidence of authorities against smoke.** [London, **1948.**] 20 p. illus. **GB-MO**—A popular account of the causes of smoke pollution, history of attacks on the problem and effects on health, natural illumination, agriculture, cleanliness, damage to property and flying. *Subject Headings:* **1. Atmospheric pollution 2. Smoke.**

3G–213 551.510.42:551.552

Hebley, Henry F., **Stability of the atmosphere and its influence on air pollution.** *Mechanical Engineering,* New York, 70:407–413, **1948.** **DLC**—A discussion of the situation in Pittsburgh, where the steep valleys form convenient conduits through which atmospheric pollution flows by air drainage from the numerous industrial centers in the Ohio basin. (*Same item* as No. A–213, in Jan. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Atmospheric pollution 2. Pittsburgh, Pennsylvania.**

3G–214 551.524.36:551.588.7

Marshall, W. A. L., **London temperatures.** *Meteorological Magazine,* London, 77:54–59, **1948.** 2 plates, 7 tables. **DLC**—A comparison of temperatures on a roof in Holborn with ground at Kensington Palace shows day maxima generally higher on roof in winter and lower in summer. Night minima were higher and daily lower on roof throughout the year by a mean of 2.3°F. Presistent frosts were more frequent at roof level, but night frosts more frequent on ground. *Subject Headings:* **1. Temperature 2. London, England.**

1949

3G–215 551.582(481)

*Birkeland, B. J., **Old meteorological observations at Trondheim. Atmospheric pressure and temperature during 185 years.** *Geofysiske Publikasjoner*, 17(5), **1949.** 38 p. 8 tables. **DWB, MH-BH**—Records of temperature and pressure made at or near Trondheim during a 185-year period (1761–1946) are presented in detail, along with biographical material on each of the observers and description of exposures, instruments, methods of reduction and correction of data, etc. Not only the monthly and annual means, but the departures from "normal," the means for various periods, the extremes of pressure and temperature and some precipitation data (1854–1885) are tabulated and discussed. (*Same abstract* as No. 9–132 in Sept. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Long period records 3. Trondheim, Norway.**—*M.R.*

3G–216 551.58:728

Drysdale, J. W., **Climate and house design; a review of investigations of the thermal behaviour of buildings, Jan. Aug. 1949.** *Australia, Commonwealth Experimental Building Station, Duplicated Document* No. 30, Sept. **1949.** 18 p. diagrs., photos, tables. Price 1 shilling. **DWB**—The thermal behavior of models $\frac{1}{4}$ scale of various building prototypes under different climatic conditions and varying degrees of ventilation was investigated in order to predict the dry bulb temperature in the prototype dwellings over a range of climatic conditions. The tests and the materials of the models are described and data on the average temperature indoors in the models and on average indoor-outdoor temperature differences are given. Also photographs of the various models and plan of brick model house are included. *Subject Headings:* **1. Urban climatology 2. Building construction 3. Microclimatology.**—*I. L. D.*

3G–217 551.582(43)

Kirste, Ernst, **Die klimatischen Verhältnisse des Stadt- und Landkreises Altenburg in Ostthüringen.** [The climatic conditions of the town and distance of Altenburg in E. Thuringia.] *Weimar. Thüringische Landeswetterwarte, Mitteilungen*, No. 9, **1949.** 12+180 p. 82 tables, 34 refs.—The area covered by this detailed study is 51°1′–50°49′N., 29°54′–30°18′E., altitude 150–302m. The various town records cover June 1899 through Dec. 1939. In addition to straight climatology covering all elements, some comparisons of town and country and synoptic climatology are included. *Subject Headings:* **1. Urban climates 2. Altenburg, Germany.**

3G–218 551.585.7

Missenard, André, **Klima und Lebensrhythmus.** [Climate and the rhythm of life.] Meisenheim am Glan, Anton Hain, **1949.** 212 p. 28 figs. **GB-MO**—This book contains several incidental references to urban climatology, especially Chap. 9: "Town and country climate" (p. 118–125). This deals with the general character of urban climate, precocity in growth, puberty and fertility, and decrease of fertility, greater infant mortality, but greater vitality between 10 and 60, growth of mental illness with increasing size of town. Chap. 12 deals with working temperatures and health in various industries. *Subject Headings:* **1. Bioclimatology 2. Urban influences.**

3G–219 551.524.3 551.577.2(436)

Morawetz, Sieghard, **Temperaturen und Niederschläge von Graz (47°04′, 15°28′, 1864–1943).** [Temperatures and precipitation for Graz (47°4′, 15°28′, 1864–1943).] *Geographische Gesellschaft in Wien, Mitteilungen*, 91(10–12):230–232, **1949.** tables. **DWB, DLC**—Analysis of 80 year series of records at Graz, showing coldest and warmest, driest and wettest years and a comparison between monthly mean temperature for each decade and month. Longest dry period was 13 months (May 1942 to May 1943) when rainfall was 53% of normal. In 1881–1882, four months had only 19% of normal. (*Same abstract* as No. 10–91 in Oct. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Temperature variations 2. Precipitation distribution 3. Graz, Austria.**—*M.R.*

3G–220 551.506.3(45) 551.582(45)

*Polli, Silvio, **100 anni di osservazioni meteorologiche eseguite a Trieste 1841–1940. Parte 1. Generalita e serie termometriche.** [Hundred years of meteorological observations at Trieste. Pt. 1. Generalities and temperature series.] *Trieste, Istituto Geofisico, Pubbl.* No. 155, [**1942**]. 26 p. 43 refs. **Parte 2. Le serie pluviometriche.** [Pt. 2. Rainfall series.] *Ibid.*, No. 214, **1946.** 23 p. 7 tables, 9 refs. **Parte 3. Temporali, grandine, neve e nebbis.** [Pt. 3. Thunderstorms, hail, snow and fog.] *Ibid.*, No. 230, **1947.** 31 p. 14 tables, 13 refs. **Parte 4. La velocita del viento.** [Pt. 4. Wind velocity.] *Ibid.*, No. 234, **1949.** 48 p. 21 tables, 62 refs.—Pt. I includes history and setup of the observatory and successive series of observations, also detailed monthly and daily means and extremes. Pt. II gives monthly and annual totals, raindays, daily maxima and 10- and 100-year averages. Pt. III gives monthly values of these phenomena for each

year, with discussion. In Pt. IV the anemometer installation is described and the various series compared. Tables give for each year monthly values of wind force and velocity and hourly and daily maxima and days of strong winds and gales. (*See also item* No. 9–102 in Sept. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Climate of Trieste 2. Urban climates 3. Trieste.**

3G–221 551.582.2(4)

Thraen, August, **Das Klima von Prag, im Zeitrahmen einer 89 jährigen Säkularwelle ausgeglichen (1856–1944).** [The climate of Prague adjusted to the period of an 89-year secular wave (1856–1944).] *Meteorologische Rundschau,* 2(11/12):323–324, Nov./Dec. **1949.** 2 figs., 2 refs. **DWB**—"Climate" is not absolute but refers to period of time considered. Author selects KÖPPEN's 89-year period and shows annual variation of pressure, temperature and rainfall in relation to sun height and variation in sunspot cycle in March to June (continental rain period) and August to February (sea rain period) showing opposite effects. (*Same abstract* as No. 7–101 in July 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Climatic variations 3. Solar influences 4. Prague, Czechoslovakia.**

3G–222 551.583.13(439.1):523.74

Thraen, August, **A napfoltak hatâse Budapest éghajlatâra (1845–1944).** [Influence of sunspots on the climate of Budapest.] *Idöjárás,* 53(11/12):375–376, Nov./Dec. **1949.** 2 figs., German summary p. 406. **DLC**—Summarizes variations of temperature, pressure, rainfall in relation to 11-year and 89-year sunspot variations. No very definite results. (*Same item* as No. 2.7–166 in July 1951 *Meteorological Abstracts.*) *Sudject Headings:* **1. Climatic variations 2. Sunspot effects 3. Budapest, Hungary.**

3G–223 551.582(02)(74)

*U. S. Weather Bureau, **The climatic handbook for Washington, D. C.** *U. S. Weather Bureau, Technical Paper* No. 8, **1949.** 235 p. 137 tables, Price $1.00. **DWB**—This volume required several years to compile and edit and contains a wealth of material on the climate of Washington, D. C. and its vicinity, most of which has never before been published. No other climatological publication ever included so much analytical data and so many intricate graphs and diagrams for determination of the probabilities of occurrence of various weather elements, singly or in combination, for any given spot. The record employed is confined to the period of 75 years from 1870 to 1945, although observations were made in great detail as early as 1844 and mean temperatures and rainfall are available for as early as 1820. The material used has been carefully annotated and the charts and tables explained in detail in the textual part. There follows about 100 large pages of tabular data: not only the usual average and extreme monthly and annual values of all the elements, but also such derived data as "heating and cooling degree days"; duration frequencies of many elements; frequencies of occurrence both actual and precentage-wise within various class limits; hourly frequencies of rainfall, cloudiness, wind direction and speed, wet bulb and dew point temperatures, air pressure and pressure differences; frequencies of upper air winds, thunderstorms, tornadoes, frosts, river stages and, finally, comparative mean temperature and precipitation data for places all over the world, arranged by continents. Eighty pages of elaborate graphs, isopleth and scatter diagrams, bar-charts and other tabular data presented in visual form, correlate and intercorrelate the various amount or frequency values of the elements with time or with each other. Then there are a number of pages of selected synoptic charts illustrating unusual or extreme conditions prevailing in Washington and several pages of upper air wind roses. Finally, there are 36 plates showing scenes in and around Washington during or after selected cases of storm, flood, snow, glaze, tornado, etc. (*Same abstract* as No. 2–159 in Feb. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Climate of Washington, D. C. 3. Washington, D. C. I. Zoch, Richmond T.** —*M.R.*

1950

3G–224 551.5:728

Drysdale, J. W., **Climate and design of buildings; physiological study no. 2; a short study of the effects of summer conditions on human beings made during 1950.** *Australia. Commonwealth Experimental Building Station, Duplicated document* No. 32, March **1950.** 21 p. photo, tables, graphs. **DWB**—Sedentary male and female subjects, acclimatized to the climate of Sydney, Australia, were subjected in an insulated room to varying combinations of dry bulb temperature (70–96°F.) and wind velocity (10–20 ft/min) with constant vapor pressure (15–22 mm Hg.) in order to determine a simple measure of comfort. The air conditioned room and the instrumentation and experimental procedure are described and specimen experimental data given. No subject registered discomfort at 86° or at 89°. Mental alertness deteriorated earlier at high humidity than at moderate humidity. A comparison was made between the use of dry bulb temperature alone and effective

temperature or an index of climatic stress. The skin temperatures, pulse rate and oral temperatures were measured. *Subject Headings:* **1. Physiological climatology 2. Sydney, Australia.**—*I.L.D.*

3G–225 551.586:612

*Loewe, Fritz, **"Difficult days" at Melbourne.** *Weather Development and Research Bulletin*, Melbourne, No. 15:12–27, June **1950.** 16 tables. **MH-BH**—Weather which interferes with industry is due to high temperature, usually associated with strong dusty winds from interior and low humidity, less often anticyclonic. Tables give number of days per month with temperatures exceeding certain values, runs of hot days, heat and strong winds. Some extreme periods and their physical and physiological effects are described. Relative humidities are next considered. Night minimum temperature also rises in hot spells; with maximum 100°F it is generally about 70°F. Finally, cooling of buildings by wind after a hot spell is discussed. (*Same item* as No. 11–137 in Nov. 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Medical meteorology 2. Urban climatology 3. Melbourne, Australia.**

3G–226 551.588.7

Parry, M., **The climates of towns.** *Weather*, 5(10):351–356, Oct. **1950.** fig., 2 tables, 5 refs. **DWB**—Accounts of town pollution and its effect on sunshine, towns as "heat islands", urban fog, modification of wind regime. Brief reference to planning town climate. (*Same abstract* as No. 2.4–188 in April 1951 *Meteorological Abstracts.*) *Subject Headings:* **1. Climatology 2. Urban climates 3. Artificial influences.**

3G–227 551.594.11:551.588.7(436)

Schilling, Gerhard F. and Seper, Hans, **Über die Abhängigkeit des luftelektrischen Potentialgradienten von der Grosstadtlage in Wien.** [On the dependence of atmospheric electrical potential gradients on the metropolitain location of Vienna.] *Archiv für Meteorologie, Geophysik und Bioklimatologie, Ser. A, 2 2 3):334–341,* **1950.** 3 figs., table, 10 refs. German, English and French summaries, p. 334. **DWB, MH-BH**—Effect of houses, buildings and traffic on potential gradient is shown by observations made along a radius from the edge of Vienna to the center of the city on Oct. 1, 1947. It is shown that the potential gradient increases and the electrical conductivity decreases proportionally as one goes toward the center of the city. This explains the high conductivity at the Zentralanstalt where continuous records are made, since the observatory is in a park area. (*Same abstract* as No. 7–126 in July 1950 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban influences 2. Atmospheric electricity 3. Potential gradient 4. Vienna, Austria.**—*M.R.*

3G–228 551.577.3(51)

*Starbuck, L., **A statistical survey of Hong Kong rainfall.** *Hong Kong. Royal Observatory, R.O.T.M.* 2, **1950.** 14 p. 18 figs.—Opens with a discussion and map of mean annual rainfall 1938–39, based on 21 stations; values from 126.5 to 79.5 in. Other figures include annual values 1853–1948 at observatory, frequencies of annual amounts, extremes, raindays, duration and intensity, diurnal variation, droughts, etc. The association of rainfall with typhoons is discussed, 5-day means show maxima in mid-June due to normal annual variation and in late July with a subsidiary peak in mid-Sept., both due to typhoons. *Subject Headings:* **1. Precipitation variations 2. Precipitation data 3. Hong Kong.**

3G–229 551.584.5:551.524.2

Sundborg, Åke, **Local climatological studies of the temperature conditions in an urban area.** *Tellus*, 2(3):222–232, Aug. **1950.** 11 figs., 7 refs., 8 equations. **DWB**—A preliminary report on a comprehensive investigation of the local variations in the climate and weather conditions affecting temperature in and around Uppsala. Methods of observation and selection of stations stressed, anomalies produced by built-up or vegetated areas considered. Isotherm maps and cross sections (vertical profiles) based on brief records, presented. Long period variations show evidence of a decrease in amplitude of daily temperatures. (*Same abstract* as No. 2.2–142 in Feb. 1951 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Temperature variations 3. Uppsala, Sweden.**—*M.R.*

3G–230 551.585.7:71

Vinaccia, Gaetano, **L'urbanistica e la climatologia alpina: la scelta dei luoghi da edificare in montagna.** [Urbanism and alpine climate: choosing building sites in mountains.] *Geofisica Pura e Applicata*, 17:238–245, **1950.** English and Italian summaries. p. 238. **DWB**—A general article on the need for the study of microclimatology on sites of proposed towns in mountain regions, with some suggestions of method. Insolation is especially important. *Subject Headings:* **1. Town Planning 2. Mountain meteorology.**

3G–231 551.584:551.588.7(84)

Zabaleta, Julio, **La temperature en la ciudad de Oruro.** [The temperature of the city of Oruro.] *Nimbus*, 2(6/7):41–56, April/Sept. **1950.** 17 figs., equations. **MH-BH**—A detailed analysis of wind, temperature, insolation and astronomical considerations which would affect the comfort of dwellings in Oruro, Bolivia (elev. 3700 m, lat. 18°S). Schematic diagrams and elaborate nomograms are presented to show the optimum orientation (45°) of dwellings or streets, and vegetation, to make the most of solar radiation for heating, etc. Number of calories received on various walls, at different times of day or season are worked out on charts. Cooling conditions (radiative) are also considered as well as the climate of the patio. (*Same abstract* as No. 2.11–166 in Nov. 1951 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Architecture 3. Solar heating 4. Oruro, Bolivia.**—*M.R.*

1951

3G–232 551.582(675)

Belgium. Ministère des Colonies, **L'urbanisme au Congo Belge.** [Urbanism in Belgian Congo.] Brussels, Éditions de Visscher, [**1951**]. 211 p. 36 figs., photos, numerous maps (fold.), tables. **NNA**—In an exhaustive and comprehensive study of development, progress, problems, projected plans, difficulties, etc. of the major urban centers of the Belgian Congo; climate is included for consideration along with the numerous other geographic, social and economic factors of urbanism. Brief but comprehensive summaries of climatic conditions, microclimate, observational set-ups, etc. are included in text as well as well-planned graphic illustrations and appended tables of climatic elements for each city: Leopoldville, Stanleyville, Elizabethville. *Subject Headings:* **1. Urban climatology 2. Belgian Congo.**

3G–233 551.58:69

Lee, Douglas, H. K., **Thoughts on housing for the humid tropics.** *Geographical Review*, New York, 41(1):124–147, Jan. **1951.** 26 figs. **DLC**—This article, illustrated by 24 excellent photographs of suitable and unsuitable types of building, sets out the amount of radiation falling on roof and walls, reflection by paint of various colors, insulating effect of different materials and of air spaces, and protection against rain. The greatest trouble is high vapor pressure, hence thorough ventilation is important and there should be no cross-wind partitions. Floor structure and house planning is discussed. Examples of houses are described for India, E. Africa, Nigeria, Australia and Puerto Rico, with costs. *Subject Headings:* **1. Building construction 2. Tropics.**

3G–234 551.588.7

Steinhauser, Ferdinand, **Ergebnisse und Aufgaben stadtklimatischer Untersuchungen in Wien.** [Results and aims of urban climatological investigations in Vienna.] *Wetter und Leben*, 3(5/7):86–94, June **1951.** 20 refs. **MH-BH**—Aims of urban climatology are town planning and effect of towns on well being and health. This general article discusses composition and ion content of Vienna air, weakening of radiation, effect of town on temperature and relation of air currents to purity of air and to precipitation. (*Same abstract* as No. 2.11–183 in Nov. 1951 *Meteorological Abstracts.*) *Subject Headings:* **1. Urban climates 2. Vienna, Austria.**

3G–235 551.584:551.588.7(485)

*Sundborg, Åke, **Climatological studies in Uppsala, with special regard to the temperature conditions in the urban area.** *Uppsala. Universitet. Geografiska Institutionen, Geographica*, No. 22, **1951.** 111 p. graphs, charts, biblio. **DLC**—This monograph on the climate of Uppsala can serve as a model for investigations of urban microclimatology. It contains a brief survey of the literature of urban climatology, in particular the effect of cities upon radiation, atmospheric temperature and humidity, wind and precipitation, a description of the topography, settlement and vegetation and an analysis of the overall climate of Uppsala on the basis of a 30-year record of observations. Data on mean hourly and monthly temperatures, absolute humidity and wind velocity and isopleth diagrams of these variables and of total radiation (using data for Stocksund) are given. The resistance thermometer for measuring temperature, its calibration and installation on the automobile are described and the method of selecting representative observation points and the procedure for taking observations are discussed. Isotherm maps, showing temperature distribution within Uppsala for specific weather conditions, are given. The relationship between temperature differences and simple climatological elements, especially cloudiness and wind, is analyzed by means of partial correlation and a theoretical analysis of physical basis of the temperature difference between the inhabited area of the city and the open countryside is presented. *Subject Headings:* **1. Microclimatology 2. Urban climates 3. Climatic data 4. Uppsala, Sweden.**—*I.L.D.*

3G–236 551.582:72

United Nations. Mission of Experts on Tropical Housing. (South and South-east Asia, November, December 1950 and January 1951.) **Report of the Secretary-General.** New York, **1951.** 11 p. Mimeographed. (United Nations, Economic and Social Council. General E/CN.5/251. March 1, 1951). *Subject Headings:* **1. Building design 2. Asia.**

3G–237 551.582(43)

Willi, Alois, **Die Stadt Rosenheim; ihre Erscheinung und Raumbeziehung.** [The city of Rosenheim; its appearance and area.] *Forschungen zur Deutschen Landeskunde*, v. 51, Landshut, **1951.** 212 p. climatic conditions p. 209. tables, refs., p. 209. **NNA**—Climate is considered briefly along with other natural conditions of the city in this fairly large and detailed work on the city of Rosenheim in Upper Bavaria. Temperature and precipitation conditions are compared with other cities, using summary tables. Snow and other conditions peculiar to Rosenheim are noted briefly. Hydrology conditions are taken up p. 17–20. *Subject Headings:* **1. Urban climates 2. Rosenheim, Germany.**

1952

3G–238 551.524.1:551.588.7(436)

Francini, O. and Lauscher, Friedrich, **Neue Temperaturnormalwerte für das Stadtgebiet und die Landschaft um Wien.** [New normal temperatures for the town and for the surrounding country of Vienna.] *Wetter und Leben*, 4(1–2):1–8. Feb. **1952.** 2 figs., 3 tables—**MH-BH**—In and around Vienna 30 stations have at least a few years record. Tables give mean monthly temperatures reduced to 1921–50, long period means for Hohe Warte, and regional differences. The discussion shows that the town is slightly warmer than Hohe Warte, the plains more continental, especially in east, and the Wiener Wald much colder. *Subject Headings:* **1. Temperature microvariations 2. Urban climates 3. Vienna, Austria.**

3G–239 551.524.1:551.588.7(485)

Lauscher, Friedrich, **Zum Stadtklima von Uppsala.** [On the town climate of Uppsala.] *Wetter und Leben*, 4(1–2):8–11, Feb. **1952.** table. Review of: A. Sundborg's, "Climatological studies in Uppsala with special regard to the temperature conditions in the urban area." *Uppsala. Universitet. Geografiska Institutionen, Geographica*, No. 22, **1951. DLC**—Based largely on 120 auto trips with a resistance thermometer by day and night, and a discussion of the various factors—haze, radiation from house walls, changed conductivity of ground, and local heat sources. Table shows effect of wind speed, general temperature and vapor pressure. (*See* 3G–235 above.) *Subject Headings:* **1. Temperature microvariations 2. Urban climates 3. Uppsala, Sweden. I. Sundborg, Ake.**

SUPPLEMENTARY MATERIAL

3G–240 551.582(752)

Fassig, Oliver Lanard, **The climate and weather of Baltimore.** Baltimore, Maryland Weather Service, Dec. **1907.** 515 p. 24 plates, 170 figs., tables. Special Publication, v. 2. **DLC**—This very detailed and richly illustrated monograph includes two parts. The first, on climate, gives monthly and annual values, including diurnal variations and extremes of pressure, temperature, humidity, precipitation, sunshine and cloud, winds, thunder, hail, etc., and the factors which affect them and their relations one to another. The second part, "The weather of Baltimore," discusses the various synoptic types and associated weather, with numerous examples. The history of the meteorological stations of Baltimore is set out. *Subject Headings:* **1. Urban climates 2. Climate of Baltimore 3. Baltimore, Maryland.**

3G–241 551.582(44)

*Piéry, M.; Dufay, Jean; Enselme, J.; Favrot, Claude; Flajolet, Philippe et al., **Le climate de Lyon et de la région lyonnaise.** [The climate of Lyons and of the Lyons region.] Lyon, Éditions Cartier. [**1946**]. 389 p. numerous figs., tables and refs. **MH-BH**—An elaborate, beautifully illustrated and comprehensive treatise on many aspects of the local and regional climate of the Lyons area, based on instrumental records from 1880–1945 and on many historical records. The work is really a collection of separate treatises by 10 authorities under the editorship of Dr. Piéry. The contributors are all meteorologists, astronomers, hydrologists, aerologists or medical professors. The work is divided into four parts: I. The meteorological and cosmic and geophysical factors in the climate of Lyons; II. Bioclimatology and physioclimatology of the urban and rural areas of Lyons; III. Human climatology; IV. Climatopathology and climatotherapy of Lyons. In the chapters of the 4 parts, the usual meteorological factors are discussed from the point of view of the macro-, meso- and microclimate. In addition, many unusual aspects are considered: atmospheric electricity, transparency of the air, air masses, local rainfall and temperature differences, solar and magnetic activity, meteorological catastrophies, geological factors, historical and prehistoric (paleo) climates and events of meteorological interest, atmospheric pollution, aerobiology, odors, effect on psychology and physiology, climate and arts or architecture, letters, science, etc. (*Same as MAB* 2.1–153, Jan. 1951.) *Subject Headings:* **1. Climate of Lyons 2. Bioclimatology 3. Urban climates 4. Lyons, France.**—*M.R.*

3G–242 551.582(45)

*Polli, Silvio, **Cento anni di osservazioni meteorologiche esequite a Trieste (1841–1940). Parte V: La direzione del vento.** [Hundred years of meteorological observations at Trieste. Pt. V. Wind direction.] *Trieste. Istituto Geofisico, Pubbl.* No. 260, **1949.** 30 p. 21 tables. **Parte VI: Le raffiche del vento.** [Pt. VI: Wind extremes.] *Ibid.*, No. 273, **1950.** 15 p. 4 tables. **DWB**—In Pt. V, after a brief description of the instrumental setup and its changes, tables are given of the annual frequencies of different directions year by year 1884–1940 and the monthly frequencies (16 points) 1903–40. Pt. VI contains monthly, seasonal and annual maximum wind gust velocities and directions in Trieste tabulated for the periods 1909–1920, 1921–1938, 1939–1947 and 1948–1950. It is pointed out that no direct comparison can be made between data representing these 4 periods, because they were obtained at different locations. Maximum gusts were of the bora (ENE) type with very few exceptions. The data were obtained with pressure anemographs. The methods applied in measurement and computation are explained. (For Pts. I–IV *see* 3G–220.) *Subject Headings:* **1. Climate of Trieste 2. Urban climates 3. Gusts 4. Trieste.**

3G–243 551.582:71

Egli, Ernst, **Die neue Stadt in Landschaft und Klima. Climate and town districts, consequences and demands.** Erlenbach-Zurich, Verlag für Architektur, **1951.** 155 p. 99 figs. In German and English. **DLC**—The first part of the book discusses the evolution of modern town forms. Pt. 2, town structure and climate, sets out the effects of different climatic zones, acting through sun, rain, wind, drought, dust, heat and cold, on the houses and town forms, with numerous illustrations which are classified into types. This is completed by studies of the layout of several ancient towns with special reference to prevailing winds. Pt. 3 relates town structures to landscapes, the response to a given landscape also differing according to the climatic zone; it ends with recommendations for town planning or extension in different climates. *Subject Headings:* **1. Town planning 2. Climatic influences.**

3G–244 551.510.42:551.588.7

Rouse, Hunter, **Air-tunnel studies of diffusion in urban areas.** *Meteorological Monographs*, Boston, 1(4):39–41, Nov. **1951.** 3 figs. **MH-BH**—Scale models of groups of houses in a wind tunnel give a true picture of large-scale turbulent diffusion. This was applied to studies of diffusion of SO_2 in urban districts from a point source. Relative concentration contours are plotted and it is suggested that the techniques be applied to smoke diffusion studies. *Subject Headings:* **1. Smoke diffusion 2. Urban effects.**

3G–245 551.58:72:016

American Institute of Architects, **Regional climate analyses and design data. Part I. The mid-Ohio region. II. Metropolitan New York and New Jersey. III. South Florida—Miami. IV. Arid southwest area. V. Mid-Mississippi Basin. VI. Gulf coast. VII. Chicago area. VIII. Twin City area. IX. Washington, D. C. area. X. Boston area. XI. Pittsburgh, Penna. XII. Portland, Oregon. XIII. Charleston, S. C. XIV. Albany, N. Y. XV. Denver, Colorado.** Collection of reprints from: *American Institute of Architects, Bulletin*, **1949, 1950, 1951** and **1952.** figs., maps, 135 refs. **DWB**—An elaborate plan for making available and interpreting climatic data, collected by the U. S. Weather Bureau, for the benefit of architects and air conditioning designers was worked out by the editors of *House Beautiful* magazine with the help of Paul Siple and other applied climatologists. Several of the regional charts, tables and graphs are included in this collection. Climagrams and other fancy presentations for temperature, dew point, sunshine, wind, solar heat, cloudiness, snowfall, precipitation, rainy days, fog, relative humidity, thunderstorms and other factors are shown for several areas. A glossary of climatic terms, a verbal analysis of each of the factors, and a list of 135 references add to the value of the work. A number of interpretations of the climatic data in terms of building design or clothing requirements *à la* Siple are also included. *Subject Headings:* **1. Architectural climatology 2. Presentation of data 3. Building design 4. Bibliographies 5. United States.**—*M.R.*

3G–246 551.584.61:551.586:697

Kamiyama, K., Suzuki, T. and Kawamori, M., **A survey on the dwelling conditions of community houses from the climatological point of view.** *Papers in Meteorology and Geophysics*, Tokyo, 2(1):90–94, March **1951.** fig., tables, equations. **DWB**—The climatic suitability of the 1000 dwellings at Toyama Heights, Tokyo was investigated by means of questionnaires given to the residents which were sampled at random at a 1 to 5 sampling ratio. It was found that 70.2% of the tenants partitioned their room in order to give protection against cold. *Subject Headings:* **1. Indoor climates 2. Heating and ventilating 3. Tokyo, Japan.**—*I.L.D.*

3G–247 551.577.2:551.506.3(437)

Čermáková, Marie, **Sráž̌y ve velké Praze.** [Precipitation in Prague and suburbs.] *Meteorologické Zprávy*, 4(5/6):116–119, **1950.** 2 figs. In Czech. **MH-BH.** Review in German by Richard Schreyer entitled **"Die Niederschläge in Gross-Prag"** in *Wetter und Leben*, 4(5/7):102–104, July **1952. DWB**—Location and height above sea level of 25 stations in Prague and the deviation of their mean precipitation values from the overall average are shown on two charts. Statistical conclusions are drawn regarding distribution of means and extremes in time and space. Case histories are given. Long period yearly average of total precipitation for the whole city is put at about 500 mm. The statistical data are based on records of the last 40 years but it is pointed out that precipitation was first measured in 1752 and continuous records for the Klementin Observatory exist since 1804. (Same as *MAB* 3.4–199, April 1952.) *Subject Headings:* **1. Precipitation distribution 2. Long period records 3. Prague, Czechoslovakia. I. Schreyer, Richard.**—*G.T.*

3G–248 551.510.42:551.588.7

†*Sheleikhovskiĭ, G. V., **Zadymlenie gorodov.** [Smoke in cities.] Moscow, Ministerstvo Komunal'nogo Khoziaĭstva, **1949.** 234 p. 96 figs., 44 tables, 72 refs., 328 equations. **DLC**—The late author, who at the time of his death in 1948 was the outstanding Soviet authority on urban climatology and related problems, has put into this book a great amount of useful experimental as well as theoretical information on the dispersion of smoke and gases in cities or industrial areas. The harmful effects of bacteria and other aerosols are first emphasized. Methods of measuring and charting the horizontal and vertical structure of smoke emitted by a stack are treated in considerable detail. Several chapters give the theory of dispersion of smoke and gases under varying conditions of wind, lapse rate, turbulence, stack height, particle size or type of gas. The theory is profusely supported by tables and charts based on empirical field or laboratory data. The chapter on laboratory models is of special interest. Most of the equipment used in laboratory experiments is illustrated and described and the results given in detail. Separate chapters deal with harmful effects such as bacterial spread, decrease in incoming UV radiation, illumination, visibility (day and night), increase in fog, smoke and sootfall, corrosion of metals and building materials and harmful action on plants and trees. Finally, a series of recommendations is presented for use in town planning in the light of wind (frequency of direction and speed) and other meteorological conditions, and some useful tables of constants for over a hundred harmful gases or aerosols. A glance at the list of references and the empirical curves indicate that the work is based on both native and foreign (German and British) data in about equal proportions, so that a considerable amount of original Soviet work is here integrated with conventional atmospheric pollution and turbulent diffusion technology for the first time. Data for specific Russian cities (e.g., Leningrad, Moscow, Voroshilov, etc.) as well as for London, Paris and vicinity, give a basis for quantitative evaluation of the various parameters involved in town planning for smoke abatement and health improvement. *Subject Headings:* **1. Urban climatology 2. Turbulent diffusion 3. Visibility 4. Smoke abatement 5. Public health.**—*M.R.*

3G–249 551.58:6

Landsberg, Helmut E. and Jacobs, Woodrow C., **Applied climatology.** (In: **Compendium of meteorology.** Boston, American Meteorological Society, **1951.** p. 976–992. 8 tables, 91 refs.) **MH-BH**—Besides a comprehensive review of problems of applied climatology, the available data and the latest techniques for applying the data to each specific problem or class of problems are given. The authors have discussed the following problems which lie in the field of urban climatology: advertising and marketing, air pollution control, architecture and housing construction, city planning, heating, power dispatching and others, including specific references to literature on each subject. (A more complete abstract of this excellent paper will appear in the current abstract section of *MAB* for Sept. 1952.) *Subject Headings:* **1. Applied climatology 2. Urban climatology 3. Statistical techniques.**—*M.R.*

PART III. METEOROLOGICAL ARTICLES APPEARING IN RECENTLY ISSUED PUBLICATIONS

Note: The contents of periodicals included in this section are for information only, and will not be listed in the monthly indexes. When material is furnished in advance of date of publication, the pagination may be omitted.

Akademiia Nauk, SSSR, Izvestiia, Seriia Geofizicheskaia, Number 6, November–December 1951.

Skvortsov, A. A.: **O teplovoĭ konvektsii i obmene v prizemnom sloe atmosfery,** [Heat convection and exchange in the surface layer of the atmosphere], p. 60–80.

Akademia Nauk SSSR, Izvestiia, Seriia Geofizicheskaia, Number 1, 1952.

Danilevich, S. I.: **Rol' kaliia v radioaktivnosti zemli po sovremennym dannym,** [The role of potash in the radioactivity of the ground according to current data], p. 3–11.

Riznichenko, IU. B.: **O sovmestnoĭ obrabotke riada nabliudeniĭ golovnykh seĭsmicheskikh voln,** [On cooperative working up of a series of observations of initial seismic waves], p. 12–20.

Pasechnik, I. I.: **Metodika eksperimental'nogo izucheniia rezonansnykh iavleniĭ v kolebatel'noĭ sisteme pochva-seĭsmograf,** [Experimental methods of investigating resonance phenomena in vibrating systems of (soil) seismographs], p. 21–34.

Malovichko, A. K.: **Sposob analiticheskogo prodolzheniia graviatzionnykh anomaliĭ,** [Means of analytical extrapolation of gravity anomalies], p. 35–39.

Nepomniashchikh, A. A.: **Logarifmicheskie graviatsionnye paletki,** [Logarithmic gravitational grids], p. 40–46.

Michailova, N. A.: **O mekhanizme obrazovaniia i dvizheniia peschanykh voln,** [On the mechanism of formation and movement of sand waves], p. 47–56.

Skopintsev, B. A.: **Opticheskaia kharakteristika organicheskogo veshchestva morskikh vod,** [Optical characteristics of organic substances in sea water], p. 57–60.

Frenkel', IA. I.: **O prichinakh ravnomernogo peremeshivaniia razlichnykh chastei atmosfery,** [On the causes of uniform mixing of various particles in the atmosphere], p. 61–63.

Berliand, M. and Berliand, T.: **Opredelenie effektivnogo izlucheniia zemli s uchetom vliianiia oblachnosti,** [Determination of the effective ground radiation taking cloudiness into consideration], p. 64–78.

Divari, N. B.: **O glubokikh sumerkakh vblizi gorizonta,** [On deep twilight along the horizon], p. 79–84.

Yaroslavtsev, I. N.: **Al'bedo estestvennogo pokrova pochvy v Tashkente,** [Albedo of natural soil cover at Tashkent], p. 85–88.

Akademiia Nauk SSSR, Izvestiia, Seriia Geofizicheskaia, Number 2, 1952.

Liubimova, E. A.: **Vliianie radiaktivnogo raspada na teplovoĭ rezhim zemli,** [Influence of radioactive decay on the thermal regime of the earth], p. 3–14.

Shifrin, K. S.: **Rasseianie sveta na dvusloĭnykh chastitsakh,** [Scattering of light on two-layer particles], p. 15–21.

Andreev, B. A.: **Raschety prostranstvennogo raspredeleniia potensial'nykh poleĭ i ikh ispol'zovanie v razvedochnoĭ geofizike (III).** [Calculation of spatial distribution of potential fields and their use in geophysical prospecting], p. 22–30.

Bulanzhe, IU. D.: **O nekotorykh sistematicheskikh oshibkakh kvartsevykh gravimetrov s gorizontal'noĭ nit'iu,** [On systematic errors in quartz gravimeters with horizontal cross-hairs], p. 31–37.

Monin, I. F.: **K voprosu issledovaniia figury geoida gravimetricheskim sposobom,** [Agravimetric methods of research on geoid figures], p. 38–45.

Monakhov, F. I.: **Nekotorye rezul'taty analiza zemletriaseniĭ Garmskoĭ Oblasti,** [Results of analysis of earthquakes in the Garmsk Oblast'], p. 46–55.

Grabovskiĭ, R. I.: **Mirovoĭ okean kak istochnik atmosfernykh iader kondensatsii,** [The World Ocean as a source of atmospheric condensation nuclei], p. 56–74.
Kulagin, D. I.: **Sviaz' radiatsionnykh i elektricheskikh kharakteristik atmosfery v Tashkente,** [Connection between radiative and electrical characteristics of the atmosphere at Tashkent], p. 75–80.
Krylov, P. A.: **Solnechnye oreoly, nabliudaemye na vysotakh,** [Solar coronas observed from heights], p. 81–84.
Mirtov, B. A.: **O knige M. I. Gol'tsmana "Osnovy metodiki aerofizicheskikh izmereniĭ,"** [On the book by M. I. Gol'tsman "Basic methods of aerophysical measurement"], p. 85–86.

American Geophysical Union, Transactions, Volume 33, Number 3, June 1952.

Press, Frank and Ewing, Maurice: **Magnetic anomalies over oceanic structures,** p. 349–355.
Yih, C. S.: **Similarity solution of a specialized diffusion equation,** p. 356–360.
Wilson, Wm. S., Guenther, Wm. B., Lowrey, Robert D. and Cain, Joseph C.: **Surface ozone at College, Alaska, for the year 1950,** p. 361–364.
Clapp, Philip F.: **Kinematic vortex theory applied to the motion of anomalies of the general circulation,** p. 365–376.
Longard, J. R. and Banks, R. E.: **Wind-induced vertical movement of the water on an open coast,** p. 377–380.
Bretschneider, C. L.: **The generation and decay of wind waves deep in water,** p. 381–389.
Kierstead, Henry A.: **Bottom pressure fluctuations due to standing waves in a deep, two-layer ocean,** p. 390–396.
Burgy, R. H. and Scott, V. H.: **Some effects of fire and ash on the infiltration capacity of soils,** p. 405–416.
Howe, Everett D.: **Fresh water from salt water,** p. 417–422.
Lynch, Joseph: **The Great Lakes, a source of two-second frontal microseisms,** p. 432–434.

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